INFORMATION TECHNOLOGY UPDATE
Dorchester District Two: Learning by Design

Andrew Cook
Education Associate
Information Technology
Office of Career and Technical Education

Molly M. Spearman – State Superintendent of Education
PRESENTATION OBJECTIVES

• To provide up-to-date information on Perkins V legislation and the relationship with other federal legislation.

• To explain different components of Perkins V and how the programs are affected by the legislation.

• To provide additional information of importance.
Strengthening Career and Technical Education for the 21st Century Act

PERKINS V
PUBLIC LAW 115-224
To cultivate the development of skilled workforce and a responsive workforce system that **meets the needs of business and industry** leading to sustainable growth, economic prosperity, and global competitiveness for South Carolina.
Profile of the South Carolina Graduate

World Class Knowledge

• Rigorous standards in language arts and math for career and college readiness
• Multiple languages, science, technology, engineering, mathematics (STEM), arts and social sciences

World Class Skills

• Creativity and innovation
• Critical thinking and problem solving
• Collaboration and teamwork
• Communication, information, media and technology
• Knowing how to learn

Life and Career Characteristics

• Integrity
• Self-direction
• Global perspective
• Perseverance
• Work ethic
• Interpersonal skills

Approved by SCASA Superintendents Roundtable and SC Chamber of Commerce
SC Education Oversight Committee, SC State Board of Education, SC Department of Education,
SC General Assembly, SC Council on Competitiveness, TransformSC, & SC Arts in Basic Curriculum
Steering Committee
CAREER AND TECHNICAL EDUCATION

• High Quality Education
  - World Class Knowledge

• Career Exploration
  - Life and Career Characteristics

• Real World Experience
  - World Class Skills
COMPREHENSIVE NEEDS ASSESSMENT

- Evaluation of student performance
- Evaluation of performance for special populations
- Description of CTE programs
  - size, scope and quality to meet the needs of all students
  - aligned to state, regional, tribal or local in-demand industry sectors or occupations; or
  - designed to meet local education or economic needs not identified by state boards or local workforce development boards
- Evaluation of progress toward implementation of CTE programs
- Improvement of recruitment, retention, and training of CTE personnel
COMPREHENSIVE NEEDS ASSESSMENT

• Equal access to high-quality CTE courses and programs
  ➢ strategies to overcome barriers that result in lower rates of access
  ➢ programs designed to enable special populations to meet the local levels of performance
  ➢ activities to prepare special populations for high-skill, high-wage, or in-demand industry sectors...that will lead to self-sufficiency;
COMPREHENSIVE NEEDS ASSESSMENT

• Consultation involves a diverse body of stakeholders
  ➢ CTE representative
  ➢ Postsecondary CTE representatives
  ➢ State board or local workforce development board and a range of local or regional businesses or industries
  ➢ Parents and students
  ➢ Special population representatives
  ➢ Local or regional agencies serving out-of-school youth, homeless children and youth, and at-risk youth
  ➢ Indian tribe and tribal organization, when applicable
  ➢ Other stakeholders
HIGH QUALITY PROGRAMS

• Challenging state academic standards
• Academic and technical knowledge and skills including employability skills
• Needs of industries in the economy of the state/region
• All aspects of an industry and progresses in specificity
• Multiple entry and exit points that incorporate credentialing
• Recognized postsecondary credential
HIGH QUALITY PROGRAMS

• Rigorous standards aligned with industry standards
• Academic core and CTE standards alignments
• Postsecondary credits
• Work-based learning
CTE CONCENTRATOR

CTE Concentrator is a student served by an eligible recipient who has completed at least 2 courses in a single career and technical education program or program of study.

Note: Concentrators courses are bolded and designated by an asterisk (*) under course requirements.
INDUSTRY RECOGNIZED CREDENTIALS

• A comprehensive listing of Industry Recognized Credentials/Certifications (approximately 365) are listed in the Student Reporting Procedures Guide.

• The Education Oversight Committee (EOC) has approved a percentage of the comprehensive listing as appropriate College and Career Ready (CCR) Industry Credentials (approximately 146) for accountability.

Note: College and Career Ready Industry Credentials are bolded and designated by an asterisk (*) under Certification.
SC REGULATIONS

• SCDE Regulation 43.234 (Defined High School Program)

• SCDE Regulation 43.232 (Defined Programs 6 - 8)
SCDE Regulation 43.234 (Defined High School Program)

• Computer Science Graduation Requirement
  – One unit of Computer Science is required
  – Keyboarding was deleted as an option beginning with the 2018-19 school year

• Certifications
  – Students shall have the opportunity to earn industry credentials or certifications

• Proficiency-based instruction/grade based on District plan
SCDE Regulation 43.232 (Defined Programs 6 - 8)

• Occupational or Exploratory Programs:
  – At least one elective which should include key concepts such as digital literacy; computing systems; networks and the internet; and data and analysis.

• High School Credit:
  – Courses offered must be limited to courses that are currently in the 9–12 section of the Activity Coding System for the Student Information System with the exception of physical education and health education courses. It is expected that students taking courses for high school credit have been taught and mastered the middle school level standards prior to taking the courses for high school credit.

• High School CS Courses with ½ Credit:
  – Discovering Computer Science
  – Fundamentals of Computing
• Computer Science Key Concepts
  – Computing Systems
  – Networks/Internet
  – Data and Analysis
  – Algorithms and Programming
  – Impact of Computing
2019-20 CS GRADUATION REQUIREMENT

NON-CTE

• Computer Science SL
• Computer Science HL-1
• Computer Science HL-2
• AP Computer Science A
• AP Computer Science Principles
2019-20 CS GRADUATION REQUIREMENT

• Fundamentals of Computing 5023
• Fundamentals of Computing Part I 502800CH (grade 7 for ½ high school credit)
• Fundamentals of Computing Part II 502900CH (grade 8 for ½ high school credit)
• Discovering Computer Science 5061
• Discovering Computer Science Part I 506200CH (grade 7 for ½ high school credit)
• Discovering Computer Science Part II 506300CH (grade 8 for ½ high school credit)
2019-20 CS GRADUATION REQUIREMENT

• IT Fundamentals 5025
• Computer Repair and Service 5320
• Advanced Computer Repair and Service 5321
2019-20 CS GRADUATION REQUIREMENT

• Networking Fundamentals 5310
• Advanced Networking 5311
• Server Administration 5312
• Advanced Server Administration 5313
• Computer Operating Systems 5322
• Advanced Computer Operating Systems 5323
• Computer Forensics 5374
• Cyber Security Fundamentals 5370
• Advanced Cyber Security 5372
2019-20 CS GRADUATION REQUIREMENT

• Database Design and Programming with SQL  5324
• Database Programming with PL/SQL   5326
• SAS Programming 1                5327
• SAS Programming 2                5328
• GIS Technology 1                 5361
• GIS Technology 2                 5362
2019-20 CS GRADUATION REQUIREMENT

- Computer Programming 1 5050
- Computer Programming 2 5051
- Computer Programming 1 with Java 5052
- Computer Programming 2 with Java 5053
- Computer Programming 1 with Visual Basic 5054
- Computer Programming 2 with Visual Basic 5055
- Computer Programming 1 with C++ 5056
- Computer Programming 2 with C++ 5057
2019-20 CS GRADUATION REQUIREMENT

• Java Fundamentals and Java Programming 5058
• Game Design and Development 5352
• Fundamentals of Web Page Design and Development 5031
• Advanced Web Page Design and Development 5033
• Foundations of Animation 5350
• Advanced Animation 5351
2019-20 CS GRADUATION REQUIREMENT

PLTW

• Principles of Engineering 6050
• Computer Science Essentials 6372
• Computer Science Applications 6373
• Computer Science Principles 6377
• Cybersecurity 6378
CS INTRODUCTORY COURSES

• Discovering Computer Science
• Fundamentals of Computing
• IT Fundamentals
• Fundamentals of Webpage Design and Development
• AP Computer Science Principles
• PLTW Computer Science Essentials
• PLTW Computer Science Principles
CS INTRODUCTORY COURSES

APPROVED PD

• Code.org
  – Discovering Computer Science
  – Computer Science Principles

• UTeach
  – AP Computer Science Principles

• Culturally Responsive Computer Science (CRoCS)

• AP Computer Science Principles with Swift Professional Learning Camp (Apple)
2018 CS COMMITTEE RECOMMENDATIONS
STANDARDS REVISIONS

• Spring 2019
  – Discovering Computer Science
  – Fundamentals of Web Page Design and Development
  – IT Fundamentals
2018 CS COMMITTEE
RECOMMENDATIONS
STANDARDS REVISIONS

• Fall 2019
  – Networking Fundamentals
  – Advanced Networking
  – Operating Systems
  – Advanced Operating Systems
  – Server Administration
  – Advanced Server Administration
  – Computer Forensics
  – Cybersecurity Fundamentals
  – Advanced Cyber Security
2018 CS COMMITTEE RECOMMENDATIONS

New and Revised Courses

• 2019-2020
  – Introduction to Computer Programming
  – Intermediate Computer Programming
  – Advanced Computer Programming
  – Information Systems
  – Gaming and Interactive Media Development
  – Client-Side Scripting
  – Mobile App Development
  – Introduction to Robotics and Control Systems
  – Intermediate Robotics and Control Systems
  – Advanced Robotics and Control Systems
  – Computing Capstone
2018 CS COMMITTEE RECOMMENDATIONS

TEACHERS

• Additional Training (“+”) Standards
• Reciprocity Procedures and Guidelines
• Required Credentials Manual 2020-21
• Summer 2019 Professional Development
• Computer Science Praxis Funding
• Pre-Service Program Development
• Five Year Computer Science PD Plan
COMPUTER SCIENCE

PRAXIS TEST - 5652

• Content Categories
  – Impacts of Computing (15%)
  – Algorithms and Computational Thinking (25%)
  – Programming (30%)
  – Data (15%)
  – Computing Systems and Networks (15%)

• Cut Score – 149
  – 100 questions (3 hours)

• Professional Development
  – Foundations of CS for Teachers: Computer Science Praxis Prep
REQUIRED CREDENTIALS

CS ADD-ON by COURSEWORK

• Bachelor’s degree or higher
• Initial or Professional certificate at the early childhood, elementary, middle, secondary, or PK–12 level
• Minimum qualifying score(s) on the content area examination(s) required by the SBE for the content area; and
• Completion of all required coursework with an equivalent of a grade of “C” or better.

• Required Courses
  – Computing Systems 3 semester hours
  – Network and the Internet 3 semester hours
  – Data and Analysis 3 semester hours
  – Algorithms and Programming 3 semester hours
  – Impact of Computing 3 semester hours
REQUIRED CREDENTIALS

CS ADD-ON by EXAM

• Bachelor’s degree or higher
• Initial or Professional certificate at the early childhood, elementary, middle, secondary, or PK–12 level
• Minimum qualifying score(s) on the content area examination(s) required by the SBE for the content area; and
REQUIRED CREDENTIALS

NO CODE + (NC+)

• No Specific Certification or No Code

  – If the acceptable credential for a role or course is not a specific certification area but does require mandatory attendant training, NC+ will be listed. The additional requirement(s) will be specified.
### REQUIRED CREDENTIALS

**NC+ EXAMPLE**

<table>
<thead>
<tr>
<th>Activity Code</th>
<th>Course Title</th>
<th>Cert. Code</th>
<th>Acceptable Certification and Mandatory Attendant Training</th>
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<tbody>
<tr>
<td>5052</td>
<td>Computer Programming with Java 1</td>
<td>79 4B</td>
<td>Computer Science Business/Marketing/Computer Technology</td>
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<td></td>
<td></td>
<td>NC+</td>
<td>Any high school certification + <em>additional training or courses approved by the Office of Career and Technical Education</em></td>
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</tbody>
</table>

- **Approved Training Examples**
  - [Oracle Java Training and Certification](#)
  - [Post-Secondary Courses Focusing on Java Programming](#)
WORK-BASED LEARNING

Examples:
* Apprenticeship/Registered Apprenticeship
* Cooperative Education (Co-Op)
* Internship
Job Shadowing
Mentoring
School-based Enterprise
Service Learning
Structured Field Study

All work-based learning experiences are coded in PowerSchool before the end of the school year.
MINIMUM OF 4 UNITS
COMPLETER PROGRAMS

Computer Science (Project Lead the Way)

Computer and Information Assurance System
Security/Information Assurance
CERTIFICATIONS
A52     CompTIA Security +
A88     Java Foundations Certified Junior Associate
A90     Oracle® Certified Associate, Java SE8 Programmer
294     OCPJP: Oracle® Certified Professional, Java SE8/SE 7 Programmer

REQUIRED COURSES/Concentrator
(Minimum of **four credits** required to be a completer.)
(Nontraditional –Females)

6372 Computer Science Essentials (CSE)*
6377 Computer Science Principles (CSP)*
or
6378 Cybersecurity*
6377 Computer Science Principles (CSP)*

CERTIFICATIONS
A52     CompTIA Security +
A88     Java Foundations Certified Junior Associate
A90     Oracle® Certified Associate, Java SE8 Programmer
294     OCPJP: Oracle® Certified Professional, Java SE8/SE 7 Programmer
CERTIFICATIONS

**A52** CompTIA Security+
**276** CompTIA PenTest+
**A41** TestOut Security Pro Certification
**277** Information Technology Security (ITS)
**A53** Systems Security Certified Practitioner - SSCP from (ISC)²®
**278** Associate of Information Security Certification (ISC)²
**279** CISSP: Certified Information Systems Security Professional
**280** CCSLP: Certified Secure Software Lifecycle Professional
**281** CHFI: Computer Hacking Forensic Investigator
**282** CEH: Certified Ethical Hacker

REQUIRED COURSES/Concentrator

(Nontraditional –Females)

5370 Cyber Security Fundamentals*
5372 Advanced Cyber Security*

CERTIFICATIONS

A52  CompTIA Security+
276  CompTIA PenTest+
A41  TestOut Security Pro Certification
277  Information Technology Security (ITS)
A53  Systems Security Certified Practitioner - SSCP from (ISC)²®
278  Associate of Information Security Certification (ISC)²
279  CISSP: Certified Information Systems Security Professional
280  CCSLP: Certified Secure Software Lifecycle Professional
281  CHFI: Computer Hacking Forensic Investigator
282  CEH: Certified Ethical Hacker
MINIMUM OF 3 UNITS COMPLETER PROGRAMS

Information Support and Services

Networking Systems

Computer Programming

Web and Digital Communications
INFORMATION SUPPORT AND SERVICES

REQUIRED COURSES/Concentrator
(Minimum of three credits required to be a completer.)
(Nontraditional – Females)

5320 Computer Repair and Service*
5321 Advanced Computer Repair and Service*

CERTIFICATIONS
01 CompTIA A+
A7 CompTIA IT Fundamentals+
A18 TestOut PC Pro
288 TestOut Client Pro
286 TestOut Server Pro
A23 Computer Service Technician
NETWORKING SYSTEMS

REQUIRED COURSES/Concentrator
(Minimum of three credits required to be a completer.)
(Nontraditional – Females)

5310 Networking Fundamentals*
5311 Advanced Networking*

CERTIFICATIONS
32 CompTIA Network+
A19 TestOut Network Pro
292 CWNA: Certified Wireless Network Administrator
293 CWTS: Certified Wireless Technology Specialist
A24 Wireless Network Technician (WNT)
289 TestOut Switching Pro
290 TestOut Routing Pro
A21 Network Computer Technician (NCT)
A22 Network Systems Technician (NST)
14 Cisco Certified Network Associate
60 Cisco Certified Entry Networking Technician
COMPUTER PROGRAMMING

REQUIRED COURSES/Concentrator
(Minimum of three credits required to be a completer.)
(Nontraditional – Females)

5050 Programming 1* or 5056 C++ 1* or 5052 Java 1* or
5051 Programming 2* or 5057 C++ 2* or 5053 Java 2* or

5054 Visual Basic 1* 5324 Database Design and Programming with SQL*
5055 Visual Basic 2* or 5326 Database Programming with SQL*

CERTIFICATIONS
A89 Database Foundations Certified Junior Associate - Oracle®
A91 Database Design and Programming with SQL - Oracle®
A88 Java Foundations Certified Junior Associate - Oracle®
A90 Certified Associate, Java SE8 Programmer - Oracle®
A92 Programming with PL/SQL - Oracle®
294 OCPJP: Certified Professional, Java SE8/SE7 Programmer - Oracle®
WEB AND DIGITAL COMMUNICATIONS

REQUIRED COURSES/Concentrator
(Minimum of three credits required to be a completer.)
(Nontraditional –Females)

5031 Fundamentals of Web Page Design and Development*
5033 Advanced Web Page Design and Development*

CERTIFICATIONS
A54    Autodesk User Certification for Maya
298    CIW Web Foundations Associate
299    CIW Internet Business Associate
300    CIW Site Development Associate
301    CIW Network Technology Associate
302    CIW Advanced HTML5 & CSS3 Specialist
303    CIW User Interface Designer
304    CIW Social Media Strategist
305    CIW Data Analyst
306    CIW Web Design Specialist
308    CIW JavaScript Specialist
309    CIW Database Design Specialist
310    CIW Web Security Specialist
311    Web Security Professional
CATE VIRTUAL SCHOOL

COURSES

IT Fundamentals

Fundamentals of Web Page Design and Development

14 weeks  1 Credit
<table>
<thead>
<tr>
<th>Postsecondary Course</th>
<th>Postsecondary Course Code</th>
<th>CIP Code</th>
<th>Secondary Course Name and Number</th>
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<tr>
<td>Computer Programming I</td>
<td>(CSCI 220)</td>
<td>151202 110201</td>
<td>5050 Computer Programming 1</td>
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<tr>
<td>Intro to Java Programming</td>
<td>(CPT 236)</td>
<td>151202 110201 110901</td>
<td>5052 Computer Programming with Java 1</td>
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<tr>
<td>Advanced Java Programming</td>
<td>(CPT 237)</td>
<td>110201</td>
<td>Computer Programming with Java 2</td>
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<td>Secondary Course Name and Number</td>
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<td>5056 Computer Programming with C++ 1</td>
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<td>Networking II</td>
<td>(CIS 225)</td>
<td>151202 110901 111003</td>
<td>5311 Advanced Networking</td>
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<td>Visual Basic Net I</td>
<td>(CPT 186)</td>
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<td>5054 Computer Programming with Visual Basic 1</td>
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<td>Internet &amp; Web Design</td>
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<td>5310 Networking Fundamentals</td>
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<td>Cisco Router Configuration</td>
<td>(IST 202)</td>
<td>151202 110901 111003</td>
<td>5311 Advanced Networking</td>
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<td>Fundamentals of Network Security I</td>
<td>(IST 291)</td>
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<td>5370 Cyber Security Fundamentals</td>
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<td>Network Vulnerability Assessment</td>
<td>(CPT 267)</td>
<td>151202 110901 110201 111003</td>
<td>5372 Advanced Cyber Security</td>
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CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSO’S)
SKILLSUSA

Computer Programming
Information Support and Services
Web and Digital Communications

Networking
Computer and Information Assurance System Security
Computer Science (PLTW)

Rick Kalk, Executive Director
Tel: 864-516-3752
skillsususasc@gmail.com
CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSO’S)
TSA

Computer Programming
Information Support and Services
Web and Digital Communications

Networking
Computer and Information Assurance System Security
Computer Science (PLTW)

Tammy Vault, State Advisor
sctsastateadviser@gmail.com
CAREER AND TECHNICAL
STUDENT ORGANIZATIONS (CTSO’S)
FBLA

Computer Programming  Networking
Information Support and  Computer and Information
Services  Assurance System Security
Web and Digital  Computer Science (PLTW)
Communications

Pat Itter, State Director
803-603-3994
pitter@scfbla.org
CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSO’S)

BPA

Computer Programming
Information Support and Services
Web and Digital Communications

Networking
Computer and Information Assurance System Security
Computer Science (PLTW)

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molnarj@fortmillschools.org
PROFESSIONAL DEVELOPMENT

June 2019 — SCDE Computer Science Symposium
- Greenville — June 27-28
- CRoCS (Clemson University) - ECS
  - Clemson — June 17-21

July 2019 — Uteach Computer Science Principles
- Charleston — June 24-28

July 2019 — Code.org Computer Science Principles
- Rock Hill/Fort Mill — July 15-19
- Charleston — July 15-19
- Columbia — July 15-19
- Florence — July 22-26
- Columbia — August 5-9

Code.org Computer Science Discoveries
- Columbia — July 8-12
- Columbia — July 22-26
- Charleston — July 22-26

CRoCS (Clemson University) AP CSP
- Clemson — July 22-26

October 2019 — CSforAll Summit (The University of Utah)
- Salt Lake City, Utah — October 21-23
THANK YOU!

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