

COMPUTER SCIENCE CURRICULUM FRAMEWORK



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VISION

All Nevadans ready for success in the 21st century

MISSION

To improve student achievement and educator effectiveness by ensuring opportunities, facilitating learning, and promoting excellence



INTRODUCTION

The Nevada CTE Curriculum Frameworks are a resource for Nevada’s public and charter schools to design, implement, and assess their CTE programs and curriculum. The content standards identified in this document are listed as a model for the development of local district programs and curriculum. They represent rigorous and relevant expectations for student performance, knowledge, and skill attainment which have been validated by industry representatives.

The intent of this document is to provide a resource to districts as they develop and implement CTE programs and curricula.

This program ensures the following thresholds are met:

- The CTE course and course sequence teaches the knowledge and skills required by industry through applied learning methodology and, where appropriate, work-based learning experiences that prepare students for careers in high-wage, high-skill and/or high-demand fields. Regional and state economic development priorities shall play an important role in determining program approval. Some courses also provide instruction focused on personal development.
- The CTE course and course sequence includes leadership and employability skills as an integral part of the curriculum.
- The CTE course and course sequence is part of a rigorous program of study and includes sufficient technical challenge to meet state and/or industry-standards.

The CTE program components include the following items:

- Program of Study
- State Skill Standards
- Employability Skills for Career Readiness Standards
- Career Technical Student Organizations (CTSOs)
- Curriculum Framework
- CTE Assessments:
 - Workplace Readiness Skills Assessment
 - End-of-Program Technical Assessment
- Certificate of Skill Attainment
- CTE Endorsement on a High School Diploma
- CTE College Credit

**NEVADA DEPARTMENT OF EDUCATION
CURRICULUM FRAMEWORK FOR
COMPUTER SCIENCE**

PROGRAM INFORMATION

Program Title: Computer Science
State Skill Standards: Computer Science
Standards Reference Code: CS
Career Cluster: Information Technology
Career Pathway: Programming and Software Development
Program Length: 3 Levels (L1, L2, L3c)
Program Assessments: Computer Science
Workplace Readiness Skills
CTSO: FBLA or SkillsUSA
Grade Level: 9-12
Industry Certifications: See Nevada’s Approved Certification Listing

PROGRAM PURPOSE

The purpose of this program is to prepare students for postsecondary education and employment in the Computer Science industry.

The program includes the following state standards:

- Nevada CTE Skill Standards: Computer Science
- Employability Skills for Career Readiness
- Nevada Academic Content Standards (alignment shown in the Nevada CTE Skill Standards):
 - Science (based on the Next Generation Science Standards)
 - English Language Arts (based on the Common Core State Standards)
 - Mathematics (based on the Common Core State Standards)
- Common Career Technical Core (alignment shown in the Nevada CTE Skill Standards)

CAREER CLUSTERS

The National Career Clusters™ Framework provides a vital structure for organizing and delivering quality CTE programs through learning and comprehensive programs of study (POS). In total, there are 16 Career Clusters in the National Career Clusters™ Framework, representing more than 79 Career Pathways to help students navigate their way to greater success in college and career. As an organizing tool for curriculum design and instruction, Career Clusters™ provide the essential knowledge and skills for the 16 Career Clusters™ and their Career Pathways.*

*Cite: National Association of State Directors of Career Technical Education Consortium. (2012). Retrieved from <http://www.careertech.org/career-clusters/glance/careerclusters.html>

PROGRAM OF STUDY

The program of study illustrates the sequence of academic and career and technical education coursework that is necessary for the student to successfully transition into postsecondary educational opportunities and employment in their chosen career path. (NAC 389.803)

PROGRAM STRUCTURE

The core course sequencing provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. Complete program sequences are essential for the successful delivery of all state standards in each program area.

COMPUTER SCIENCE
Core Course Sequence

COURSE NAME	LEVEL
Computer Science I or AP Computer Science Principles	L1
Computer Science II	L2
Computer Science III or AP Computer Science A	L3C

The core course sequencing with the complementary courses provided in the following table serves as a guide to schools for their programs of study. Each course is listed in the order in which it should be taught and has a designated level. A program does not have to utilize all of the complementary courses in order for their students to complete their program of study. Complete program sequences are essential for the successful delivery of all state standards in each program area.

COMPUTER SCIENCE
Core Course Sequence with Complementary Courses

COURSE NAME	LEVEL
Computer Science I or AP Computer Science Principles	L1
Computer Science II	L2
Computer Science II LAB*	L2L
Computer Science III or AP Computer Science A	L3C
Computer Science III LAB*	L3L
Computer Science Advanced Studies*	AS

*Complementary Courses

STATE SKILL STANDARDS

The state skill standards are designed to clearly state what the student should know and be able to do upon completion of an advanced high school career and technical education (CTE) program. The standards are designed for the student to complete all standards through their completion of a program of study. The standards are designed to prepare the student for the end-of-program technical assessment directly aligned to the standards. (Paragraph (a) of Subsection 1 of NAC 389.800)

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS

Employability skills, often referred to as “soft skills,” have for many years been a recognizable component of the standards and curriculum in career and technical education programs. The twenty-one standards are organized into three areas: (1) Personal Qualities and People Skills; (2) Professional Knowledge and Skills; and (3) Technology Knowledge and Skills. The standards are designed to ensure students graduate high school properly prepared with skills employers prioritize as the most important. Instruction on all twenty-one standards must be part of each course of the CTE program. (Paragraph (d) of Subsection 1 of NAC 389.800)

CURRICULUM FRAMEWORK

The Nevada CTE Curriculum Frameworks are organized utilizing the recommended course sequencing listed in the program of study and the CTE Course Catalog. The framework identifies the recommended content standards, performance standards, and performance indicators that should be taught in each course.

CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs)

To further the development of leadership and technical skills, students must have opportunities to participate in one or more of the Career and Technical Student Organizations (CTSOs). CTSOs develop character, citizenship, and the technical, leadership and teamwork skills essential for the workforce and their further education. Their activities are considered a part of the instructional day when they are directly related to the competencies and objectives in the course. (Paragraph (a) of Subsection 3 of NAC 389.800)

WORKPLACE READINESS SKILLS ASSESSMENT

The Workplace Readiness Skills Assessment has been developed to align with the Nevada CTE Employability Skills for Career Readiness Standards. This assessment provides a measurement of student employability skills attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C) (Paragraph (d) of Subsection 1 of NAC 389.800)

END-OF-PROGRAM TECHNICAL ASSESSMENT

An end-of-program technical assessment has been developed to align with the Nevada CTE Skill Standards for this program. This assessment provides a measurement of student technical skill attainment. Students who complete a program will be assessed on their skill attainment during the completion level course. Completion level courses are identified by the letter “C”. (e.g., Level = L3C) (Paragraph (e) of Subsection 1 of NAC 389.800)

CERTIFICATE OF SKILL ATTAINMENT

Each student who completes a course of study must be awarded a certificate which states that they have attained specific skills in the industry being studied and meets the following criteria: A student must maintain a 3.0 grade point average in their approved course of study, pass the Workplace Readiness Skills Assessment, and pass the end-of-program technical assessment. (Subsection 4 of NAC 389.800)

CTE ENDORSEMENT ON A HIGH SCHOOL DIPLOMA

A student qualifies for a CTE endorsement on their high school diploma after successfully completing the following criteria: (1) completion of a CTE course of study in a program area, (2) completion of academic requirements governing receipt of a standard diploma; and (3) meet all requirements for the issuance of the Certificate of Skill Attainment. (NAC 389.815)

CTE COLLEGE CREDIT

CTE College Credit is awarded to students based on articulation agreements established by each college for the CTE program, where the colleges will determine the credit value of a full high school CTE program based on course alignment. An articulation agreement will be established for each CTE program designating the number of articulated credits each college will award to students who complete the program.

CTE College Credit is awarded to students who: (1) complete the CTE course sequence with a grade-point average of 3.0 or higher; (2) pass the state end-of-program technical assessment for the program; and (3) pass the Workplace Readiness Assessment for employability skills.

Pre-existing articulation agreements will be recognized until new agreements are established according to current state policy and the criteria shown above.

Please refer to the local high school's course catalog or contact the local high school counselor for more information. (Paragraph (b) of Subsection 3 of NAC 389.800)

ACADEMIC CREDIT FOR CTE COURSEWORK

Career and technical education courses meet the credit requirements for high school graduation (1 unit of arts and humanities or career and technical education). Some career and technical education courses meet academic credit for high school graduation. Please refer to the local high school's course catalog or contact the local high school counselor for more information. (NAC 389.672)

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Students enrolled in this sequence have the option of Computer Science I or AP Computer Science Principles for the L1 class that is the prerequisite for the Computer Science program.

OPTION A**COURSE INFORMATION:**

COURSE TITLE: Computer Science I

ABBR. NAME: COMPUTER SCI I

CREDITS: 1

LEVEL: L1

CIP CODE: 11.0701

PREREQUISITE: NONE

CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course will introduce students to the essential ideas of computer science and show how computing and technology can influence the world. This course focuses on technology and programming as a means to solve computational problems and find creative solutions. The appropriate use of technology and industry-standard equipment is an integral part of this course.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0 : UNDERSTAND ALGORITHMS AND PROGRAMMING**

Performance Standard 1.1 : Apply Algorithms

Performance Indicators : 1.1.1

Performance Standard 1.2 : Implement Controls

Performance Indicators : 1.2.1-1.2.2

Performance Standard 1.3 : Utilize Variables

Performance Indicators : 1.3.1-1.3.2

Performance Standard 1.4 : Construct Solutions Using Modularity

Performance Indicators : 1.4.1-1.4.2

Performance Standard 1.5 : Demonstrate Programming and Development

Performance Indicators : 1.5.1-1.5.5

CONTENT STANDARD 2.0 : UNDERSTAND COMPUTING SYSTEMS

Performance Standard 2.1 : Describe Devices

Performance Indicators : 2.1.1

Performance Standard 2.2 : Compare Hardware and Software

Performance Indicators : 2.2.1

Performance Standard 2.3 : Explain Troubleshooting

Performance Indicators : 2.3.1

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CONTENT STANDARD 3.0 : UNDERSTAND DATA AND ANALYSIS

Performance Standard 3.1 : Evaluate Storage Solutions

Performance Indicators : 3.1.1-3.1.2

Performance Standard 3.2 : Create Using Collection, Visualization, and Transformation

Performance Indicators : 3.2.1-3.2.2

Performance Standard 3.3 : Create Using Inference and Models

Performance Indicators : 3.3.1

CONTENT STANDARD 4.0 : UNDERSTAND IMPACTS OF COMPUTING

Performance Standard 4.1 : Evaluate the Impact of Computing on Culture

Performance Indicators : 4.1.1-4.1.4

Performance Standard 4.2 : Increase Social Interactions

Performance Indicators : 4.2.1

Performance Standard 4.3 : Explain Safety, Law, and Ethics Related to Computing

Performance Indicators : 4.3.1-4.3.3

CONTENT STANDARD 5.0 : UNDERSTAND NETWORKS AND THE INTERNET

Performance Standard 5.1 : Evaluate Network, Communication, and Organization

Performance Indicators : 5.1.1

Performance Standard 5.2 : Describe Cybersecurity

Performance Indicators : 5.2.1-5.2.4

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

* Refer to the Computer Science Standards for alignment by performance indicator.

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Students enrolled in this sequence have the option of Computer Science I or AP Computer Science Principles for the L1 class that is the prerequisite for the Computer Science program.

OPTION B**COURSE INFORMATION:**

COURSE TITLE: AP Computer Science Principles

ABBR. NAME: AP COMP SCI PRIN

CREDITS: 1

LEVEL: L1

CIP CODE: 11.0701

PREREQUISITE: NONE

CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course follows The College Board Advanced Placement curriculum and prepares students for the AP Computer Science Principles exam. This course will introduce students to the essential ideas of computer science and show how computing and technology can influence the world. This course focuses on technology and programming as a means to solve computational problems and find creative solutions. Students will creatively address real-world issues and concerns while using the same processes and tools as artists, writers, computer scientists, and engineers to bring ideas to life. The appropriate use of technology and industry-standard equipment is an integral part of this course.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0 : UNDERSTAND ALGORITHMS AND PROGRAMMING**

Performance Standard 1.1 : Apply Algorithms

Performance Indicators : 1.1.1

Performance Standard 1.2 : Implement Controls

Performance Indicators : 1.2.1-1.2.2

Performance Standard 1.3 : Utilize Variables

Performance Indicators : 1.3.1-1.3.2

Performance Standard 1.4 : Construct Solutions Using Modularity

Performance Indicators : 1.4.1-1.4.2

Performance Standard 1.5 : Demonstrate Programming and Development

Performance Indicators : 1.5.1-1.5.5

CONTENT STANDARD 2.0 : UNDERSTAND COMPUTING SYSTEMS

Performance Standard 2.1 : Describe Devices

Performance Indicators : 2.1.1

Performance Standard 2.2 : Compare Hardware and Software

Performance Indicators : 2.2.1

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Performance Standard 2.3 : Explain Troubleshooting

Performance Indicators : 2.3.1

CONTENT STANDARD 3.0 : UNDERSTAND DATA AND ANALYSIS

Performance Standard 3.1 : Evaluate Storage Solutions

Performance Indicators : 3.1.1-3.1.2

Performance Standard 3.2 : Create Using Collection, Visualization, and Transformation

Performance Indicators : 3.2.1-3.2.2

Performance Standard 3.3 : Create Using Inference and Models

Performance Indicators : 3.3.1

CONTENT STANDARD 4.0 : UNDERSTAND IMPACTS OF COMPUTING

Performance Standard 4.1 : Evaluate the Impact of Computing on Culture

Performance Indicators : 4.1.1-4.1.4

Performance Standard 4.2 : Increase Social Interactions

Performance Indicators : 4.2.1

Performance Standard 4.3 : Explain Safety, Law, and Ethics Related to Computing

Performance Indicators : 4.3.1-4.3.3

CONTENT STANDARD 5.0 : UNDERSTAND NETWORKS AND THE INTERNET

Performance Standard 5.1 : Evaluate Network, Communication, and Organization

Performance Indicators : 5.1.1

Performance Standard 5.2 : Describe Cybersecurity

Performance Indicators : 5.2.1-5.2.4

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:

CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

* Refer to the Computer Science Standards for alignment by performance indicator.

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS****COURSE INFORMATION:****COURSE TITLE: Computer Science II****ABBR. NAME: COMPUTER SCI II****CREDITS: 1****LEVEL: L2****CIP CODE: 11.0701****PREREQUISITE: Computer Science I or AP Computer Science Principles****CTSO: FBLA or SkillsUSA****COURSE DESCRIPTION:**

This course is a continuation of Computer Science I or AP Computer Science Principles. This course provides intermediate computer science students with instruction in advanced techniques and processes, particularly as it relates to the language of Java. The areas of major emphasis in the course will be on object-oriented programming methodology, algorithms, data structures and ethics. Topics will include program design, program implementation, standard data structures, and standard algorithms. The appropriate use of technology and industry-standard equipment is an integral part of this course.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0 : UNDERSTAND ALGORITHMS AND PROGRAMMING**

Performance Standard 1.1 : Apply Algorithms

Performance Indicators : 1.1.2-1.1.5

Performance Standard 1.2 : Implement Controls

Performance Indicators : 1.2.2

Performance Standard 1.3 : Utilize Variables

Performance Indicators : 1.3.3-1.3.4

Performance Standard 1.4 : Construct Solutions Using Modularity

Performance Indicators : 1.4.3-1.4.5

Performance Standard 1.5 : Demonstrate Programming and Development

Performance Indicators : 1.5.6-1.5.11**CONTENT STANDARD 2.0 : UNDERSTAND COMPUTING SYSTEMS**

Performance Standard 2.2 : Compare Hardware and Software

Performance Indicators : 2.2.2

Performance Standard 2.3 : Explain Troubleshooting

Performance Indicators : 2.3.2**CONTENT STANDARD 3.0 : UNDERSTAND DATA AND ANALYSIS**

Performance Standard 3.1 : Evaluate Storage Solutions

Performance Indicators : 3.1.3

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CONTENT STANDARD 4.0 : UNDERSTAND IMPACTS OF COMPUTING

Performance Standard 4.1 : Evaluate the Impact of Computing on Culture

Performance Indicators : 4.1.5

Performance Standard 4.3 : Explain Safety, Law, and Ethics Related to Computing

Performance Indicators : 4.3.4**EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:****CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4**ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:**

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

* Refer to the Computer Science Standards for alignment by performance indicator.

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Students enrolled in this sequence have the option of Computer Science III or AP Computer Science A for the L3C class that is the prerequisite for the Computer Science program.

OPTION A**COURSE INFORMATION:**

COURSE TITLE: Computer Science III

ABBR. NAME: COMPUTER SCI III

CREDITS: 1

LEVEL: L3C

CIP CODE: 11.0701

PREREQUISITE: Computer Science II

PROGRAM ASSESSMENTS: COMPUTER SCIENCE

WORKPLACE READINESS SKILLS

CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course is a continuation of Computer Science II. This course provides advanced computer science students with instruction in advanced programming, techniques and processes, with an emphasis in the language of Java. The students will continue to develop all skills learned in Computer Science I and II. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0 : UNDERSTAND ALGORITHMS AND PROGRAMMING**

Performance Standard 1.1 : Apply Algorithms

Performance Indicators : 1.1.5-1.1.6

Performance Standard 1.2 : Implement Controls

Performance Indicators : 1.2.3-1.2.5

Performance Standard 1.3 : Utilize Variables

Performance Indicators : 1.3.3-1.3.4

Performance Standard 1.4 : Construct Solutions Using Modularity

Performance Indicators : 1.4.5

Performance Standard 1.5 : Demonstrate Programming and Development

Performance Indicators : 1.5.12-1.5.13

CONTENT STANDARD 3.0 : UNDERSTAND DATA AND ANALYSIS

Performance Standard 3.2 : Create Using Collection, Visualization, and Transformation

Performance Indicators : 3.2.3

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Performance Standard 3.3 : Create Using Inference and Models

Performance Indicators : 3.3.2

CONTENT STANDARD 4.0 : UNDERSTAND THE IMPACT OF COMPUTING ON CULTURE

Performance Standard 4.1 : Evaluate the Impact of Computing on Culture

Performance Indicators : 4.1.6-4.1.8

Performance Standard 4.2 : Increase Social Interactions

Performance Indicators : 4.2.2

Performance Standard 4.3 : Explain Safety, Law, and Ethics Related to Computing

Performance Indicators : 4.3.5

CONTENT STANDARD 5.0 : UNDERSTAND NETWORKS AND THE INTERNET

Performance Standard 5.1 : Evaluate Network, Communication, and Organization

Performance Indicators : 5.1.2

Performance Standard 5.2 : Describe Cybersecurity

Performance Indicators : 5.2.5

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:

CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

* Refer to the Computer Science Standards for alignment by performance indicator.

CORE COURSE:**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Students enrolled in this sequence have the option of Computer Science III or AP Computer Science A for the L3C class that is the prerequisite for the Computer Science program.

OPTION B**COURSE INFORMATION:**

COURSE TITLE: AP Computer Science A

ABBR. NAME: AP COMPUTER SCI A

CREDITS: 1

LEVEL: L3C

CIP CODE: 11.0701

PREREQUISITE: Computer Science II

PROGRAM ASSESSMENTS: COMPUTER SCIENCE

WORKPLACE READINESS SKILLS

CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course follows The College Board Advanced Placement curriculum and prepares students for the AP Computer Science exam. This course provides advanced computer science students with instruction in advanced topics that include problem solving, design strategies and methodologies, data structures, algorithms, analysis of potential solutions and the ethical and social implications of computing. The course emphasizes both object-oriented and imperative problem solving and design. Students will learn to write, run, and debug solutions in the Java programming language, utilizing standard Java library classes. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

TECHNICAL STANDARDS:**CONTENT STANDARD 1.0 : UNDERSTAND ALGORITHMS AND PROGRAMMING**

Performance Standard 1.1 : Apply Algorithms

Performance Indicators : 1.1.5-1.1.6

Performance Standard 1.2 : Implement Controls

Performance Indicators : 1.2.3-1.2.5

Performance Standard 1.3 : Utilize Variables

Performance Indicators : 1.3.3-1.3.4

Performance Standard 1.4 : Construct Solutions Using Modularity

Performance Indicators : 1.4.5

Performance Standard 1.5 : Demonstrate Programming and Development

Performance Indicators : 1.5.12-1.5.13

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CONTENT STANDARD 3.0 : UNDERSTAND DATA AND ANALYSIS

Performance Standard 3.2 : Create Using Collection, Visualization, and Transformation

Performance Indicators : 3.2.3

Performance Standard 3.3 : Create Using Inference and Models

Performance Indicators : 3.3.2

CONTENT STANDARD 4.0 : UNDERSTAND THE IMPACT OF COMPUTING ON CULTURE

Performance Standard 4.1 : Evaluate the Impact of Computing on Culture

Performance Indicators : 4.1.6-4.1.8

Performance Standard 4.2 : Increase Social Interactions

Performance Indicators : 4.2.2

Performance Standard 4.3 : Explain Safety, Law, and Ethics Related to Computing

Performance Indicators : 4.3.5

CONTENT STANDARD 5.0 : UNDERSTAND NETWORKS AND THE INTERNET

Performance Standard 5.1 : Evaluate Network, Communication, and Organization

Performance Indicators : 5.1.2

Performance Standard 5.2 : Describe Cybersecurity

Performance Indicators : 5.2.5

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:**CONTENT STANDARD 1.0 : DEMONSTRATE EMPLOYABILITY SKILLS FOR CAREER READINESS**

Performance Standard 1.1 : Demonstrate Personal Qualities and People Skills

Performance Indicators : 1.1.1-1.1.7

Performance Standard 1.2 : Demonstrate Professional Knowledge and Skills

Performance Indicators : 1.2.1-1.2.10

Performance Standard 1.3 : Demonstrate Technology Knowledge and Skills

Performance Indicators : 1.3.1-1.3.4

ALIGNMENT TO THE NEVADA ACADEMIC CONTENT STANDARDS*:

English Language Arts: Reading Standards for Literacy in Science and Technical Subjects
Writing Standards for Literacy in Science and Technical Subjects
Speaking and Listening

Mathematics: Mathematical Practices

Science: Science and Engineering Practices

* Refer to the Computer Science Standards for alignment by performance indicator.

COMPLEMENTARY COURSE(S):**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Programs that utilize the complementary courses can include the following courses. The Advanced Studies course allows for additional study through investigation and in-depth research.

COURSE INFORMATION:

COURSE TITLE: Computer Science Advanced Studies

ABBR. NAME: COMPUTER SCI AS

CREDITS: 1

LEVEL: AS

CIP CODE: 11.0701

PREREQUISITE: Computer Science III or AP Computer Science Principles

CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course is offered to students who have achieved all content standards in a program whose desire is to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students' topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

TECHNICAL STANDARDS:

Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

EMPLOYABILITY SKILLS FOR CAREER READINESS STANDARDS:

Students have achieved all program content standards and will pursue advanced study through investigation and in-depth research.

SAMPLE TOPICS:

- Internship
- CTSO Leadership
- Teaching assistant

COMPLEMENTARY COURSE(S):**RECOMMENDED STUDENT PERFORMANCE STANDARDS**

Programs that utilize the complementary courses can include the following courses. The lab courses allow additional time to be utilized in developing the processes, concepts, and principles as described in the classroom instruction. The standards and performance indicators for each lab course are shown in the corresponding course listed in the previous section.

COURSE INFORMATION:

COURSE TITLE: Computer Science II LAB
ABBR. NAME: COMPUTER SCI II L
CREDITS: 1
LEVEL: L2L
CIP CODE: 11.0701
PREREQUISITE: Concurrent enrollment in Computer Science II
CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth lab experience that applies the processes, concepts, and principles as described in the classroom instruction. The coursework will encourage students to explore and develop advanced skills in their program area. The appropriate use of technology and industry-standard equipment is an integral part of this course.

COURSE INFORMATION:

COURSE TITLE: Computer Science III LAB
ABBR. NAME: Abbreviated name per course catalog
CREDITS: 1
LEVEL: L3L
CIP CODE: 11.0701
PREREQUISITE: Concurrent enrollment in Computer Science III
CTSO: FBLA or SkillsUSA

COURSE DESCRIPTION:

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth lab experience that applies the processes, concepts, and principles as described in the classroom instruction. The coursework will encourage students to explore and develop advanced skills in their program area. The appropriate use of technology and industry-standard equipment is an integral part of this course.