Computer Science Principles

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Description

Computer Science (CS) Principles is an intellectually rich and engaging course that is focused on building a solid understanding and foundation in computer science. This course emphasizes the content, practices, thinking and skills central to the discipline of computer science. Through both its content and pedagogy, this course aims to appeal to a broad audience. The focus of this course will fall into these computational thinking practices: connecting computing, developing computational artifacts, abstracting, analyzing problems and artifacts, communicating, and collaborating.

Various forms of technologies will be used to expose students to resources and application of computer science. Professional communication skills and practices, problem-solving, ethical and legal issues, and the impact of effective presentation skills are enhanced in this course to prepare students to be college and career ready. Employability skills are integrated into activities, tasks, and projects throughout the course standards to demonstrate the skills required by business and industry.

Computer Science Principles is the second course in the pathways Programming and Computer Science in the Information Technology Cluster. Students enrolled in this course should have successfully completed Introduction to Digital Technology.

Software Used

Dr. Java, Lego MindStorms, Alice, Greenfoot, Visual Basic 8 Express

Books and Sources Used

Gaddis, T. Starting Out with Alice. Pearson Publishing, 2008.

Kolling, M. Introduction to Programming with Greenfoot. Pearson Publishing, 2010.

Pelland, P. Microsoft Visual Basic 2008 Express Edition: Build a Program Now! 2nd Edition. Microsoft Press, 2008.

Class work

All assignments are posted on the Ringgold High School website.

Each student is required to complete daily assignments. If the student is absent, the work must be made up in the computer lab before or after school. The student should make arrangements on the day of return to make up class work. *All assignments will be weighted equally.*

Career Opportunities

- É   Computer Engineer
- É   Game Developer
- É   Programmer
- É   Software Engineer

FBLA

FBLA is a co-curricular student organization that plays an integral part in the components of the Business & Technology course standards. FBLA activities are incorporated throughout this course and the rest of the Business and Computer Science courses. Students are strongly urged to join FBLA ($15.00) to benefit from the wealth of opportunities the organization has to offer.

Course Standards

IT-CSP-1
Demonstrate employability skills required by business and industry.

IT-CSP-2
Create digital artifacts that foster creative expression including programs, digital music, videos, images, documents, and combinations of these such as infographics, presentations, and web pages.

IT-CSP-3
Apply abstractions in digital data to explain how bits are grouped to represent higher-level abstractions such as numbers and characters.

IT-CSP-4
Design and create computer programs to process and extract information to gain insight and knowledge.

IT-CSP-5
Develop, express, implement, and analyze algorithms analytically and empirically.

IT-CSP-6
Create programs that translate human intention into computational artifacts including music, images, visualizations, and more while exploring the concepts, techniques and development used in writing programs.

IT-CSP-7
Gain insight into the operation of the Internet, study characteristics of the Internet and systems built upon it, and analyze important concerns, such as cybersecurity.

IT-CSP-8
Develop a logical argument from the many ways in which computing enables innovation and our methods for communicating, collaborating, problem solving, and doing business, and analyze the potential benefits and harmful effects of computing in a the way people think, work, live, and play.

IT-CSP-9
Explore how related student organizations are integral parts of career and technology education courses through leadership development, school and community service projects, entrepreneurship development, and competitive events.

Other Information

 Expectations for Academic Success

1) Complete daily classwork assignments
2) Participate in discussions and ask questions
3) Participate constructively as a team member
4) Problem solve and accept challenges
5) Challenge yourself to continuously improve

Business Department Cheating Policy: No credit will be given for any assignment where cheating has occurred.

The syllabus may be updated as needed throughout the semester.