Ola High School

HIGH SCHOOL COURSE SYLLABUS

COURSE TITLE.....**Computer Science Principles** **TERM** **2020-2021**

TEACHER .....Richard Hudnut **ROOM #**.....405

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Teacher Support	Help sessions are available …

COURSE DESCRIPTION

Engage your creativity, demonstrate and build your problem solving ability all while connecting the relevance of computer science to the society! 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.

Prerequisites: Introduction to Digital Technology is the pre-requisite for this course.

COURSE CURRICULUM CONTENT

Course Standards

COURSE STANDARDS	UNITS/TOPICS
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.	Unit 1 Digital Information - Explore how computers store complex information like numbers, text, images and sound and debate the impacts of digitizing information. Unit 2 The Internet - Learn about how the Internet works and discuss its impacts on politics, culture, and the economy. Unit 3 Intro to App Design - Design your first app while learning both fundamental programming concepts, and collaborative software development processes. Unit 4 Variables, Conditionals, and Functions - Expand the types of apps you can create by adding the ability to store information, make decisions, and better organize code.

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. Unit	Unit 5 Lists, Loops, and Traversals - Build apps that use large amounts of information and pull in data from the web, to create a wider variety of apps. Unit 6 Algorithms - Design and analyze algorithms to understand how they work and why some are considered better than others. Unit 7 Parameters, Return, and Libraries - Learn how to design clean and reusable code that you can share with a single classmate or the entire world. Unit 8 Create PT Prep - Practice and complete the Create Performance Task (PT). Unit 9 Data - Explore and visualize datasets from a wide variety of topics as you hunt for patterns and try to learn more about the world around you. Unit 10 Cybersecurity and Global Impacts - Research and debate current events at the intersection of data, public policy, law, ethics, and societal impact.

INSTRUCTIONAL MATERIALS AND SUPPLIES

Instructional Supplies
3-ring binder, paper, pen or pencil, headphones

EVALUATION AND GRADING

Assignments	Grade Weights		Grading Scale
Classwork & Homework Projects Unit Tests Quizzes Final Exam	Class Assessments Daily Work, Quizzes Summative Assessment Projects, Unit Tests **Class Work** Final Exam	40% 40% **80%** **20%**	A: 90 and above B: 80 – 89 C: 74 – 79 D: 70 – 73 F: 69 or below

OTHER INFORMATION

Expectations for Academic Success	Additional Requirements/Resources
1) Complete daily classwork assignments 2) Participate in class discussions and ask questions 3) Participate constructively as a team member 4) Problem solve and accept challenges 5) Challenge yourself to continuously improve	• Acceptable Computer Use Policy • Tutoring Available • Gmail account for assignment tracking* • Google Classroom account* *These will be set up at school

Employability Skills:

All classes within the pathway stress the importance of students learning and demonstrating appropriate and professional behavior. We refer to these intangible traits as "employability skills". Students are provided more freedom to perform work and learn in teams in and outside the traditional classroom, but they are also held to a higher standard when it comes to behavior. Examples of bad behavior that will result in discipline action include but are not limited to:

- Misuse or use of cell phone or other electronic device inappropriately
- Taking other student's property
- Inappropriate use of school equipment
- Non-Participation / Sleeping During Class
- Disrespectful behavior towards teacher or classmates

Rules & Class Conduct:

- Food and Drink (with the exception of water) are prohibited in the classroom.
- All book bags / back packs should be placed in the designated area upon entering the classroom and should not be on desks or lab tables.
- Unsafe behavior such as pushing others, throwing things or horseplay, will not be tolerated.
- Students are encouraged to actively participate in all discussions but remain respectful to their peers, the instructor and guest speakers. (Logging in daily for remote learning is imperative)

Consequences for Inappropriate Behavior:

- 1st Offense Verbal warning from teacher
- 2nd Offense Verbal warning from teacher and email or phone call home to parents
- 3rd Offense Discipline referral to Administrator

*Violations of school policies such as inappropriate language, dress code, fighting, skipping class, drugs or weapon possession or other serious offenses will be immediately referred to school administrators for appropriate discipline without warning(s).