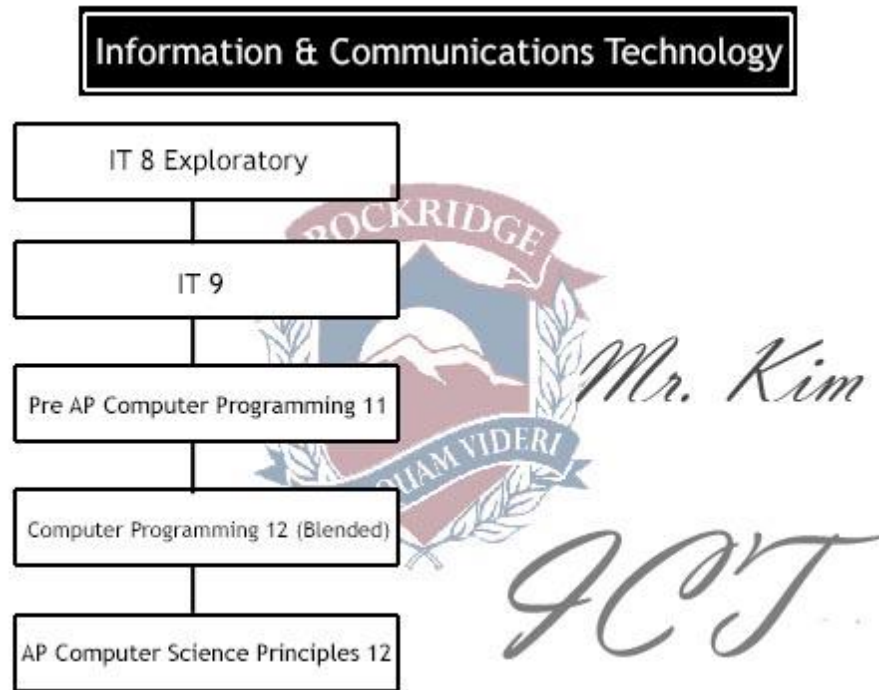**Information & Communications Technology Courses**

Technology literacy is a skill set that is in high demand in our global community. The three uses of information technology in a modern society are information technology (electronic resources), communication technology (telecommunication), and processing technology (software that help us do better, faster work). Technology is a tool and not an answer in and of itself. It should seen as a learning tool that students learn with, not from. In preparing for the real world, ICT students are posed real problems with real world connections. ICT classes are set up with project based multimedia assignments that allows for real problems that seeks to connect students' work in school with the wider world in which the students live. It allows for student decision making, involves collaboration with others (students, community), and encompasses a full range of assessment, not just the final product. More importantly, it attempts to synthesize concepts from other courses. Come see what exciting opportunities await you in the world of Information and Communications Technology.

Information Technology 8 is an introductory 12-week course (29 classes) that focuses on these big ideas (design can be responsive to identified needs; complex tasks require the acquisition of additional skills; complex tasks may require multiple tools and technologies). The curricular competencies will focus on the design cycle (understanding context, defining, ideating, proto-typing, testing, making, and sharing). The design cycle will focus on applied design, applied skills, and applied technologies.

- File Management
- Keyboarding (speed / technique) (ergonomics)
- Digital Literacy and Responsibility (Digital Citizenship)
- Computers and Computer Communication Devices - Multiple Search Engines
- Microsoft Office Suite (Word Processing, Spreadsheets)
- Google Classroom – Google Suite (Doc, Spreadsheet, Drive)
- In-text citations and bibliography APA style
- Programming – computational thinking - translate ideas into code to solve a design problem

Information Technology 9 is a 37 weeks (120-hour) course used to develop basic cross curricular computing skills. The class focuses on these big ideas (social, ethical, and sustainability considerations impact design; complex tasks require the sequencing of skills; complex tasks require different technologies and tools at different stages). The curricular competencies will focus on the design cycle (understanding context, defining, ideating, proto-typing, testing, making, and sharing). The design cycle will focus on applied design, applied skills, and applied technologies. The different units we will explore are:

- Problem Solving Unit - explore problem solving process and the different ways humans and computers solve problems
- Web Design Unit - discover the languages that power the web and build websites in HTML and CSS
- Animation and Games Unit - learn the powerful constructs underlying programming languages and build inter-active animations and games in JavaScript using Game Lab
- The Design Process Unit - follow a design process to identify and empathize problems faced by a target audience / prototype an app to help solve that problem in App Lab
- Data and Society Unit - learn how information is represented, collected, analyzed, and visualized by computers / investigate how data is collected online and weigh the potential benefits and harms to individuals and society at large
- Physical Computing Unit - explore the relationship between hardware and software while building interactive projects

Pre AP Computer Programming 11 (MCMPR 11 – 4 credits Science or Applied Skills) is a 37 weeks (120-hour). There is no pre-requisite for this course; however, students should consult with the teacher to see what essential skills are needed before enrolling. This is an introductory course that teaches the foundation of Computer Science. It will teach students to think computationally, solve complex problems and prepare them for AP Computer Science Principles 12.

The major areas of study in this course include human computer interaction, problem solving, computing and data analysis, web design, programming, and physical computing. Ethical and social issues in computing, and careers in computing, are woven throughout the units.

Computer Programming 12 (MCMPR 12 – 4 credits Science or Applied Skills) is a 37 weeks blended course. There is no pre-requisite for this course; however, students should consult with the teacher to see what essential skills are needed before enrolling.

The focus of MCMPR 12 is programming in Scratch, App Inventor, Processing, and Java. There will be a focus on Physical Programming using Arduino and Raspberry Pi boards. The class will work on a blended model where students will meet face to face once a week after school and also complete additional assignments online. Students should be highly motivated and be prepared to extend their learning outside of class time.

AP Computer Science Principles 12 (APCSP 12 – 4 credits Applied Skills, Math, or Science) is a new computer science course designed to give students foundational computing skills, an understanding of the real-world impact of computing applications, and programming literacy. AP Computer Science Principles builds on the concepts learned in earlier ICT Programming 11 Pre AP and other lower level ICT courses. Students will take AP Computer Science Principles 12 and ICT Programming 12 concurrently to necessitate a better understanding of their performance programming tasks. Students will receive 8 credits in total for both courses.

AP Computer Science Principles 12 will complete the coursework using Studio Code. Additional information is also available on Mr. Kim's AP Computer Science Principles 12 website.

The major areas of study in this course are organized around seven big ideas built on the foundations of studying computer science. The seven big ideas include connecting computing, creating computational artifacts, abstracting, analyzing problems and artifacts, communicating, and collaborating. Each of these big ideas will have a set of essential questions that will allow students to connect to the content of the big ideas. The big ideas connect students to a curriculum scope that includes the art of programming, but not programming centric.

Computational Thinking Practices
Connecting computing
Creating computational artifacts
Abstracting
Analyzing problems and artifacts
Communicating
Collaborating

Big Ideas
Creativity
Abstraction
Data and Information
Algorithms
Programming
The Internet
Global Impact

The AP Computer Science Principles Curriculum Framework (.pdf/1.42MB) focuses on the innovative aspects of computing as well as the computational thinking practices that help students see how computing is relevant to many areas of their everyday lives.

The course snapshot contains five units of study with a sixth unit devoted almost exclusively to students working on their AP Performance Task (PT) projects. Each unit has one or two chapters of related lessons that usually conclude with some kind of project or summative assessment. A timeline showing a typical school year is shown to give a rough estimate of pacing. There is a multiple choice AP Computer Science Principles exam and two through course performance tasks which require students to explore the impacts of computing and create computational artifacts through programming. ***Note: the performance task submission deadline is the end of April, and the written AP Exam is in May. Students who choose to write the AP Computer Science Principles exam are charged an optional exam fee of $135.*** AP Computer Science Syllabus.

There is also an optional enhancement fee for this course.

In all the courses above, there will be a number of assignments and quizzes in each module done individually and/or in-groups. A concept map and a rationale synthesizing what was learned in each term will also be completed. Students are required to bring a pen or pencil, loose-leaf paper, and a 3- ring binder to each class.