# Course Descriptions - Career and Technical Education

Career and Technical Education courses are designed for students who are interested in learning about different career opportunities while they earn high school and in some cases, college credits. These courses are open to any students who are interested in making more educated decisions about their college and career goals through experiencing and learning in a CTE course. CTE courses are a sequence of two courses forming a career pathway. The first course is called a concentrator course, while the second course is called a capstone course.Taking the concentrator course in any pathway is highly recommended for the most ENGAGING, immersive experience possible. CTE Courses are typically very hands-on, robust experiences where students learn by doing, and exploring the industry in which they are interested.



**MVHS CTE CAREER PATHWAYS**

| CTE Industry Sector | Pathway | Concentrator Course | Capstone Course |
|---|---|---|---|
| Engineering Architecture | Engineering Technology | #^Engineering Tech I | #^Engineering Tech II |
| Engineering Architecture | Architecture Design | Arch Design I | Arch Design II |
| Information & Communication Tech | Software & Systems Dev | > AP Computer Science | Adv. Computer Science |
| Information & Communication Tech | Games & Simulation | Computer Science I | Game Design |
| Health Science & Medical Tech | Patient Care | ^#Health Careers I | *#^Health Careers II |
| Business & Finance | Business Management | *^Business Management I | *^Business Management II |
| Arts Media & Entertainment | Commercial Art | *Commercial Art I | *Commercial Art II |
| Arts Media & Entertainment | Digital Communications | >Digital Comm II | *Digital Comm III |
| Work Experience Exploration | WEE | Work Exp Exploration | General Work Exp |

>It is recommended that students take Computer Science 1 before AP Computer Science
>It is recommended that students take *Digital Communications I before Digital Communications II
*Dual Enrollment Course; students earn college credit with a grade of C or better upon completing the DE Course.
#CTSO stands for Career and Technical Student Organization. These are formal CTE Clubs that meet and attend competitions, conferences etc.
^Certs are Certifications that students earn that are industry specific that help them prove they have the necessary skills to be hired in their industry.

www.mvla.net/cte

| Business Management Pathway | Health Careers Pathway |
|---|---|

## BUSINESS MANAGEMENT I     BO2203
Dual Enrollment Credit

| Grades 9-12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>Dual-Enrolled with Foothill College | |
| None | Recommended Prerequisites | |
| CP | Level | |

This is the first, or concentrator course, in the Business Management Pathway. Students learn the four main functional areas of business - marketing, operations, human resources, and finance. This includes exposure to analysis tools and research methods used to identify business operation related problems and how to implement solutions efficiently and effectively..

Students who are interested in Entrepreneurship and/or a career in Finance, Management, Marketing, Operations, or just learning the principles of Business Management should consider this pathway.

## HEALTH CAREERS I     LC1020
AHA BLS Industry Certification

| Grades 10-12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>AHA BLS Industry Certification | |
| None | Recommended Prerequisites | |
| CP | Level | |

This is the first/concentrator course in the Health Careers Pathway. Students who are interested in any career within the healthcare field (e.g. nurse, doctor, dentist, veterinarian, dental hygienist, ultrasound tech, optometrist, etc.) should consider this pathway.

Students will learn the history of healthcare, explore a variety of healthcare occupations via guest speakers and field trips, learn about current health trends and body systems via case studies and labs, help with the school blood drives, and earn American Heart Association BLS certification among other things.

## BUSINESS MANAGEMENT II     BO2204
Dual Enrollment Credit

| Grades 10-12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>Dual-Enrolled with Foothill College | |
| Bus. Mgmt. I | Recommended Prerequisites | |
| CP | Level | |

This course is the capstone course in the CTE Business Management Pathway, and is open to all students.
- Students will be working in leadership teams that mimic a real world business operation, including human resources, marketing, budgeting, and sustainability in today's global society.
- Students will create their own business and operate as key members of that business for success as they learn the different aspects of what it takes to operate a successful business, or be part of a business team. Students will have the opportunity to compete in business related competitions via Virtual Enterprise and DECA.

## HEALTH CAREERS II     LC1021
Dual Enrollment Credit
Industry Certification Offered

| Grades 10-12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>Dual-Enrolled with Foothill<br>Industry Certification Offered | |
| Health Careers I | Recommended Prerequisites | |
| CP | Level | |

This course is the capstone/final course in the CTE Health Careers Pathway. It is open to all students interested in pursuing a career in the healthcare industry who have taken Health Careers I. This is a dual enrollment class with a field experience component, e.g. learning opportunities in hospitals, clinics, and other medical worksites in local industry settings.

## Software Design Pathway

### AP COMPUTER SCIENCE A     BA1010

| Grades 10-12 | Y | Units – 10 |
|---|---|---|
| Mathematics c <br> Elective g | HS Graduation Req. <br> UC Req. <br> CSU Req. | |
| Computer Sci. I | Recommended Prerequisites | |
| AP | Level - AP/H | |

This is the concentrator course in the Software and Systems Development CTE Pathway where students learn fundamentals of programming, data structures and object oriented design using Java. Students will build small to large-scale applications and games emphasizing skills in problem-solving, coding design, graphics, and user interfaces with an emphasis on industry standard coding conventions. To support the CTE standards, students will hear from industry experts and engage in digital citizenship activities. Throughout the year, students will review and prepare for the AP Computer Science A exam. AP CS A is the equivalent of a first semester college-level computer science course.

### ADVANCED COMPUTER SCIENCE     BC1019

| Grades 11-12 | Y | Units – 10 |
|---|---|---|
| Mathematics c <br> Elective g | HS Graduation Req. <br> UC Req. <br> CSU Req. | |
| AP Computer Sci. A or Teacher Approval | Recommended Prerequisites | |
| H | Level | |

This is the capstone course in the software design pathway in which students expand their programming knowledge beyond AP Computer Science A. This course will have an emphasis on building and applying concepts in data structures. Students will learn such topics as generics, linked lists, stacks, sets, hash tables, maps, graphs, heaps, priority queues, and trees. Students will do performance analysis (Big O) and develop applications pertaining to each data structure. In addition, students will explore and utilize concepts in search, sorting, design, file i/o, networking, and multithreading.

## Games and Simulation Pathway

### COMPUTER SCIENCE I     BC1011

| Grades 9-12 | Y | Units – 10 |
|---|---|---|
| Elective g g | HS Graduation Req. <br> UC Req. <br> CSU Req. | |
| None | Recommended Prerequisites | |
| CP | Level | |

This is the concentrator course in the Games and Simulation CTE Pathway where we introduce computer science using a variety of coding languages including a block language, Python, JavaScript, Java. Students will code microcontrollers and learn the core concepts of computer science, industry coding standards and object oriented design to support modular design. To support the CTE standards, students will hear from industry experts, engage in digital citizenship activities and investigate careers in the Information and Communications Technologies Sector. Students will have the opportunity to become Python level 1 certified. In the final weeks of the year students will create a 2D game using the Unity Game Engine in preparation for the Game Design course.
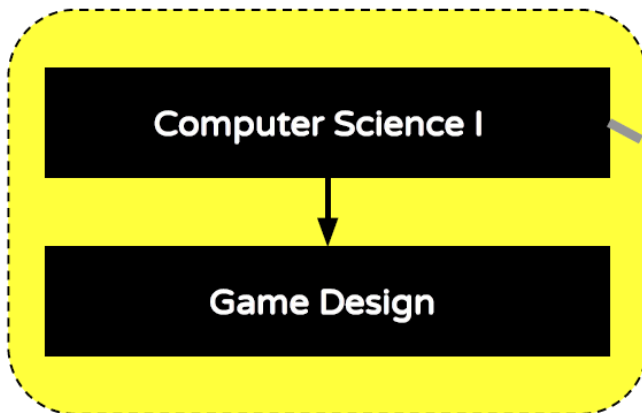
### GAME DESIGN     BC1018

| Grades 9-12 | Y | Units – 10 |
|---|---|---|
| Elective g g | HS Graduation Req. <br> UC Req. <br> CSU Req. | |
| Computer Sci. I | Recommended Prerequisites | |
| CP | Level | |

This is the CTE capstone course in the Games and Simulation Pathway in which students learn Game Design and theories of play while practicing creativity and design thinking. Students will spend the first semester creating 2D games and the second semester working in 3D, with more complex geometry, modeling, texturing and lighting. Students work in collaborative groups to create long term projects using Github and the Unity game engine.
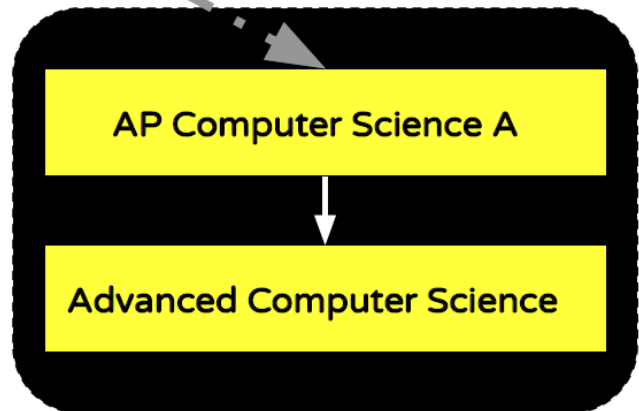
# MVHS Computer Science
# CTE Pathways

**CTE Pathway**
Games and Simulations

**Computer Science I**

**Game Design**

**CTE Pathway**
Software and Systems
Development

**AP Computer Science A**

**Advanced Computer Science**

*\*\* Game Design may be taken following any amount of computer science courses (0-many)*

# Architectural Design Pathway

## ARCHITECTURAL DESIGN I      BC3010

| Grades 9-12 | Y | Units – 10 |
|---|---|---|
| Fine art f Elective g | HS Graduation Req. UC Req. CSU Req. | |
| None | Recommended Prerequisites | |
| CP | Level | |

Architectural Design I is the concentrator CTE course in the architectural design pathway intended to help students develop skills that require Architectural graphic & design abilities. Concepts of Architectural planning and design, and the skills and techniques used by the Architect in designing and planning structures are used throughout the course. Students are guided through a series of assignments and projects that provide an understanding of how visual arts apply to real world problems through the use of a computer-aided design system. Students will work individually and in teams to solve a variety of design problems assigned by the instructor or jobs developed from the community. This course will allow students to increase their potential of successfully entering and participating in advanced college and/or career programs.

## ARCHITECTURAL DESIGN II      BC3011

| Grades 10-12 | Y | Units – 10 |
|---|---|---|
| Fine art f f | HS Graduation Req. UC Req. CSU Req. | |
| Arch. Dsgn. I | Recommended Prerequisites | |
| CP | Level | |

This CTE course is the capstone course in the architectural design pathway that will introduce students to more real, semester-long projects that involve more advanced architectural concepts surrounding material, program, site analysis and building structure. Students will be expected to produce compelling and visually appealing projects around speculative client briefs, culminating in a printed portfolio requirement that prepares students for real world internships in the architectural field.

# Engineering Technology Pathway

## ENGINEERING TECHNOLOGY I      KC1340
OSHA-10 General Industry Certification

| Grades 9-12 | Y | Credits – 10 |
|---|---|---|
| Science d Elective g | HS Graduation Req. UC Req. CSU Req. | |
| None | Recommended Prerequisites | |
| CP | Level | |

Engineering Technology I is the first-level class in the Engineering Pathway. This course familiarizes students with careers in engineering and related technical fields.  Students will learn engineering fundamentals and tool use through hands-on design and fabrication.

## ENGINEERING TECHNOLOGY II      KC1350
OSHA-10 General Industry Certification
NC3 Mechatronics 1 Certification
NC3 AC/DC Fundamentals Certification
Festo PLCs-Siemens Certification
Universal Robot Robotics 1 Certification

| Grades 10-12 | Y | Credits – 10 |
|---|---|---|
| Science d Elective g | HS Graduation Req. UC Req. CSU Req. | |
| Eng. Tech I | Recommended Prerequisites | |
| CP | Level | |

Engineering Technology II is the second-level class or capstone class of the Engineering Pathway. This is an advanced engineering course designed to further expose students to engineering technology careers and college majors, and it provides hands-on instruction in several engineering disciplines including mechanical, electrical, and civil engineering. Engineering Technology II is designed for students who want to prepare for college and university studies or for future engineering careers.

## Commercial Art Pathway

**COMMERCIAL ART I**                    KC1080
Dual Enrollment Credit

| Grades 9-12 | Y | Credits – 10 |
|---|---|---|
| Fine Art f Elective g | HS Graduation Req. UC Req. CSU Req. Dual-Enrolled with Foothill ● GID 33 ● GID 34 | |
| None | Recommended Prerequisites | |
| CP | Level | |

Commercial Art is the first concentrator course in the commercial art CTE-AME Pathway (Media Arts). The Commercial Art I is designed to enable students to achieve digital arts literacy as a distinct, stand-alone arts discipline, whose basic categories include the following areas: photography, imaging, sound, animation, video, web design, graphic design, virtual design, interactive design. Curriculum is based on the 2019 California VAPA and CTE AME Standards. Successful completion of this class satisfies MVHS graduation requirements in art and UC/CSU A-G (*f*) admission requirements and offers college credit and a GPA bump through dual-enrollment with Foothill College. Historical periods and artists are compared and contrasted through reading, writing, and computer – based activities. Aesthetic valuing and criticism are infused within the curriculum through verbal and written critique of student work and the artwork of professional and historical artists.

## Digital Communications Pathway

**DIGITAL COMMUNICATION I**                    KC1200
Dual Enrollment Credit (formerly Publication Design)

| Grades 9-12 | Y | Credits – 10 |
|---|---|---|
| Fine Art f Elective g | HS Graduation Req. UC Req. CSU Req. Dual-Enrolled with Foothill ● PHOTO 5 | |
| None | Recommended Prerequisites | |
| CP | Level | |

Digital Communications I class is an introductory class to the CTE Digital Communications pathway that provides students with an understanding of printing and manufacturing processes and systems common to careers in the graphic arts and printing technology industries. The class focuses on the production of the school annual yearbook and includes topics such as photography, graphic design, typography, image generation and file preparation, pre-press preparation, and printing technologies, and business practices. Curriculum is based on the California Career Technical Education (CTE) and is aligned with the 2019 California Arts Standards. Successful completion of this class satisfies MVHS graduation requirements in art and UC/CSU A-G (*f*) admission requirements. and offers college credit and a GPA bump through dual-enrollment with Foothill College.

## COMMERCIAL ART  II
KC1081
Dual Enrollment Credit

| Grades 10-12 | Y | Credits – 10 |
|---|---|---|
| Fine Art<br>f<br>Elective<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>Dual-Enrolled with Foothill<br>● GID 35<br>● GID 60 | |
| Commercial Art I | Recommended Prerequisites | |
| CP | Level | |

This course is the Capstone course in the commercial art CTE pathway that  offers college credit and a GPA bump through dual-enrollment with Foothill College. Emphasis is on the commercial applications of art to graphic design and illustration, video and photography, and 3D printing. Students study design basics and advanced skills as preparation for careers through the history of art and design, analysis, interpretation and critiques. Students use a variety of techniques ranging from handmade methods including screen printing to using software including Adobe Photoshop and Illustrator and 3D software such as Fusion 360 and Cura. Successful Completion of this pathway's Dual Enrollment sequence leads to a Certificate of Achievement in Graphic Design from Foothill College, 14 College units total. " Link for this is https://foothill.programmapper.com/academics/interest-clusters/1e2f45d8-9266-4330-96d4-059e4d34cdb8/programs/fa98db63-a854-08a6-fe69-3b2db5911388

## DIGITAL COMMUNICATION II
KC1210
(formerly Journalism)

| Grades 9-12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req. | |
| None | Recommended Prerequisites | |
| CP | Level | |

This is the Concentrator course in the Digital Communications CTE pathway. Students will apply journalistic processes to the development and refinement of original audio and or visual content, learn how to capture and edit content for specific audiences, and how to properly operate equipment for capturing, editing, broadcasting, and streaming content in different environments.

This course also produces the school newspaper, The Oracle. Students will develop their creative and technical skills that prepare them for careers in media production and communications across digital platforms. They will learn about narrative structure and the journalistic process by telling impactful stories, and using industry standard state of the art software to do so.

## SPORTS MEDICINE
VO6010
Dual Enrollment Credit
CPR Certification Offered

| Grades 10-12 | Y | Credits-10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>Dual-Enrolled with Foothill<br>● KINS 15<br>● KINS 16A<br>● KINS 16B | |
| None | Recommended Prerequisites | |
| CP | Level | |

Sports Medicine is a year-long class. Students learn the basics of Athletic Training. This course also offers college credit through Foothill college. Students assist the MVHS Athletic Trainer during sports games on campus. Students learn the basics of anatomy, First Aid, and Injury Protocols. Students interested in any Health Career should take this course to learn the foundational skills required to be successful in this field. This is a Foothill CTE course that is a stand alone course currently.

## DIGITAL COMMUNICATION III
KC1220
**Dual Enrollment Credit**

| Grades 11-12 | Y | Credits – 10 |
|---|---|---|
| Fine art<br>f<br>f | HS Graduation Req.<br>UC Req<br>CSU Req.<br>Optional dual-enrollment<br>with Foothill | |
| None | Recommended Prerequisites | |
| CP | Level | |

This course is the capstone course in the Digital Communication pathway. Students will refine their creative and technical skills while preparing for careers in media production and communications across digital platforms. They will apply narrative structure in the journalistic process while producing the school newspaper, The Oracle. Students will continue to learn to tell impactful stories, demonstrate proficiency in industry-standard tools and software, and properly operate equipment for capturing, editing, broadcasting and streaming content. Pathway completers will develop a professional portfolio and understand the application of skills in workplace environments.

## (GENERAL) WORK EXPERIENCE EDUCATION  KO1210

| Grades 11 -12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req. | |
| None | Recommended Prerequisites | |
| CP | Level | |

Students must be eligible for a Work Permit to participate in this course. Work Experience Education is designed to support students who are working at a job that pays at least minimum wage to earn Elective credits for their Work Experience. Students will need to submit pay stubs regularly to show proof of employment and meet academic requirements to maintain a work permit. The Work Experience Instructor will be contacting employers regularly to ensure students are meeting all professional standards. Students will maintain a professional portfolio to demonstrate their learning from the job experience. This is a "g" elective to meet the UC a-g requirements.

## EXPLORATORY WORK EXPERIENCE EDUCATION  DB5010
Dual Enrollment Credit

| Grades 9 -12 | Y | Credits – 10 |
|---|---|---|
| Elective<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req.<br>Dual-enrollment with Foothill | |
| None | Recommended Prerequisites | |
| CP | Level | |

Students who are interested in gaining professional skills and experience should take this class. This class helps students focus and improve on their employability skills. Students **DO NOT need to have a work permit or a job to take this course**. Students can volunteer on or off campus, work in internships, or work seasonally to gain experience to support their future college and career goals. Students earn Elective credits for this course. This is a "g" elective to meet the UC a-g requirements.

## PERSONAL FINANCE  BC3031

| Grades 9-12 | Y | Credits – 10 |
|---|---|---|
| Mathematics<br>g<br>g | HS Graduation Req.<br>UC Req.<br>CSU Req. | |
| None | Recommended Prerequisites | |
| CP | Level | |

This course is designed to teach students about financial topics that they will use throughout their lives. Topics include bank accounts, types of financial institutions, credit cards, types of loans, credit scores, budgeting, investing in the stock market, paying taxes, paying for college, getting a job, purchasing a car, purchasing a house, retirement, insurance and how people make financial decisions (behavioral economics). The three main goals of the course are to teach students: (1) To live within their means and make saving and investing a habit (2) Learn the power of compound interest and invest young (3) Become financially literate and understand at least the big picture of most financial topics and common pitfalls to avoid. No prior experience or math skills are required. Please note this course cannot replace a core Math class like Algebra I, Geometry, or Algebra II requirement.