

## APPLIED TECHNOLOGY PROGRAM

The Applied Technology program offers courses utilizing the latest computer and video technology in addition to an Architecture class involving traditional drawing and design materials. Technical courses are offered in computer programming and web design. Digital imaging and video courses stress content and the use of the computer as a creative tool. Students may choose from a variety of electives or focus on one area of interest. Advanced level classes require successful completion of prerequisites or permission of the instructor.

### COURSES OFFERED ARE:

3D Graphics (Semester)

Advanced 3d Graphics (semester)

Advanced Topics Digital Imaging and Multimedia (Semester)

Architectural Drafting and Design (Semester)

Computer Skills & Applications -(Semester)

Digital Imaging and Collage (Semester)

Introduction to Computer Programming (Full Year/Semester)

Video Production (Semester)

Video Production II (Semester)

Web Site Design and Publishing (Semester)

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### **3D GRAPHICS (CAD)**

**SEMESTER – 2.50 CREDITS**

**COURSE #715**

**For students in grades: 9, 10, 11, and 12**

**Prerequisites: None.**

**Description:** In this course students will learn to understand and manipulate digitally simulated 3D space with Truespace. Starting from primitives, students create 3D models, scenes, and basic animations. Students will undertake multiple projects utilizing conventional and non-conventional modeling and lighting techniques. Students use Adobe Photoshop and Image Ready to explore multiple texture-mapping techniques and basic animations of objects and scenes. Students generate high resolution rendered scenes and animations that meet the criteria of each lesson and final project. Possible projects include basic vehicle design, character design and product design.

**Evaluation:** Evaluation will be based on class assignments, participation, quizzes, exams, and the quality of the final project.

This course has Expectations for Student Learning 3, 4, 7 and 9 as its primary concern, and also supports Expectations 2, 5 and 8.

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**ADVANCED 3D GRAPHICS (CAD 2)****SEMESTER – 2.50 CREDITS****COURSE #716****For students in grades: 9, 10, 11, and 12****Prerequisite: Successful completion of 3D Graphics, or instructor approval**

**Description:** In this course students will further learn to understand and manipulate digitally simulated 3D space. This course is designed for students seeking continued development of their talents to a higher level, and to experience more advanced aspects of the 3D art making process. The course is recommended for students who have completed the 3D Graphics course receiving a grade of B or above, who are looking for projects based on real world applications, and who wish to excel and really push the limits of their creative potential. Students will apply 3D graphics knowledge and skill toward producing more specific, individual and team-based projects. Students are exposed to various advanced-level 2D and 3D computer graphic tools and techniques currently being used to create artwork for computer gaming, designing products and tools for industrial and commercial applications, animated short films and character design.

Students choose between programs to integrate two or more of them with combinations of tools and techniques that best suit the needs and fulfill the prescribed outcomes of their projects.

Programs used are: Truespace, Maya, 3dsMAX, Blender, Vegas and Terogen.

Students also use Adobe Photoshop, Adobe Illustrator and Image Ready to refine their texture-mapping techniques and support the production quality of their projects.

**Evaluation:** Evaluation will be based on class assignments, class participation, performance exams, and the quality of the final projects.

This course has Expectations for Student Learning 3, 4, 7 and 9 as its primary concern, and also supports Expectations 2, 5 and 8.

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**ARCHITECTURAL DRAFTING AND DESIGN****SEMESTER – 2.50 CREDITS****COURSE #720****For students in grades: 9, 10, 11, and 12****Prerequisites: None**

**Description:** In this course students will gain an understanding of the various skills involved in the field of architecture. The basic design concepts of architectural design will be taught through sketching, drafting, and model building. Students will learn about the history of architecture, as well as the forms in which it is practiced today. Students will have the opportunity to meet with visiting architects who will present their work, join the class for critiques and discuss their use of the topic being studied at a given point in the course. Visits to the DeCordova Museum, the Gropius House and other local sites are an important aspect of the course. Students will produce a portfolio of work including drafts, final drawings, free hand sketches as well as three-dimensional studies and models. Studying the evolution of architectural styles and how they have been influenced by technology and society today will provide students with applicable knowledge in the field. The goal of the course is to provide a sampling of skills from the world of architectural engineering. There are also exciting homework projects, which are required for the final portfolio.

**Evaluation:** Evaluation will be based on class work projects written work, class participation and final portfolios.

This course has Expectations for Student Learning 3, 4, and 9 as its primary concern, and also supports Expectations 2, 7, and 8.

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**DIGITAL IMAGING AND COLLAGE****SEMESTER – 2.50 CREDITS****COURSE #725****For students in grades: 9, 10, 11, and 12****Prerequisites: None**

**Description:** In this course students will develop the skills necessary for manipulating and producing images using the computer. Emphasis is placed on a basic understanding of the computer as a creative tool including painting applications, design and composition, preparing images for the web, resolution, scanning, digital cameras and printing. Students will work in one of the schools computer labs and will use a variety of programs including Adobe Photoshop and Adobe Image Ready. They will use the computer to create original designs, as well as to combine existing images and photographs. Creative problem solving, personal expression, and competence gained in the practical use of design programs will be stressed. An understanding of how to navigate through a Macintosh or Windows computer is helpful though not required.

**Evaluation:** Evaluation will be based on class work, projects, written work, class participation and final portfolios.

This course has Expectations for Student Learning 3, 4, 7 and 9 as its primary concern, and also supports Expectations 2, 5 and 8.

**ADVANCED TOPICS IN DIGITAL IMAGING AND MULTIMEDIA****SEMESTER – 2.50 CREDITS****COURSE #726****For students in grades: 9, 10, 11, and 12****Prerequisites: Successful completion of Digital Imaging and Collage or permission of the instructor.**

**Description:** Students in this course will apply their previous experience with digital imaging toward more complex projects and software as they develop a portfolio of digital work. They will continue to create digital montages that demonstrate a good understanding of the software and of aesthetic concepts related to composition and idea development. The class will use a variety of programs including Adobe Photoshop, Image Ready, and Illustrator. Part of the class work will involve combining images to create digital animations of their collages. Emphasis will be placed on students creating proposals for their own work intended for high-resolution printing or web site content. Student will publish their work to CD as well as the web.

**Evaluation:** Evaluation will be based on class work, projects, written work, class participation and final portfolios.

This course has Expectations for Student Learning 3, 4, 7 and 9 as its primary concern, and also supports Expectations 2, 5 and 8.

**INTRODUCTION TO COMPUTER PROGRAMMING****FULL YEAR – 5.00 CREDITS****COURSE #735****INTRODUCTION TO COMPUTER PROGRAMMING****SEMESTER – 2.50 CREDITS****COURSE #736****For students in grades: 10, 11, and 12****Prerequisites: Honors or CPI Algebra 2 or permission of the instructor.**

**Description:** Computer programs specify the behavior of computers from the hardware up to the user applications such as network browsers, document editors and photograph processors. Students will be introduced to programming using the Java programming language. Object-oriented methodology will be used throughout the course. The student will learn the syntax and semantics of a large part of the Java language, and be exposed to the criteria for developing well-structured, readable and maintainable programs. Computer labs will be based on the development environments with rich educational features.

The first semester of the course will provide the basic skills of programming, including class definition, method definition, procedural use of methods, variable and operators, and control flow with conditionals and loops. The second semester will address advanced concepts in object-oriented programming and, to the degree possible, explore the content of the AP Computer Science curriculum

**Evaluation:** Students will be evaluated primarily on the quality and functionality of programs that they develop in the computer lab. Additional quizzes and test may be used to supplement the lab work.

This course has Expectations for Student Learning 3 and 7 as its primary concern, and also supports Expectations 2, 5, and 8

**COMPUTER SKILLS & APPLICATIONS**  
**For students in grades: 9, 10, 11, and 12**  
**Prerequisite: NONE**

**SEMESTER 2.50 CREDITS**

**COURSE #740**

**Description:** This one semester course will be taught on the Windows XP platform and is appropriate for beginning to intermediate computer students. Topics offered include basic terminology, fundamentals of the operating system (Windows XP), word processing (using MS Word), spreadsheets and charting (using Excel), graphics, desktop publishing, and multimedia presentations (using PowerPoint). Students will gain proficiency and will be able to integrate all applications taught.

**Evaluation:** Evaluation will be based on classroom and the completion of writing assignment, quizzes and assigned projects.

The course has Expectations for Student Learning 3 and 7.

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**WEB SITE DESIGN AND PUBLISHING**  
**For Students in Grades: 9, 10, 11, and 12**  
**Prerequisites: None**

**SEMESTER - 2.50 CREDITS**

**COURSE #742**

**Description:** This is a one semester hands-on course where students create interactive graphic animations, graphics, and text-based web pages utilizing the Macromedia Dreamweaver suite of web authoring tools.

In class assignments are assigned in each of the three texts used for class that encompasses web graphics, animation, and web page design. All three of the "Essentials" texts have a hands-on approach, which is conducive to a learning by doing approach. During their process of learning the Macromedia web-authoring tools, students will be utilizing their communication, organization, interpersonal, and technical skills as well.

**Evaluation:** Evaluation will be based on successful completion on in-class assignments, quizzes, an end of quarter and final exam. Students are encouraged to complete a web project for extra credit.

This course has Expectations for Student Learning 3 and 7 as its primary concern, and also supports Expectation 4.

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**VIDEO PRODUCTION**  
**For students in grades: 9, 10, 11, and 12**  
**Prerequisites: None**

**SEMESTER – 2.50 CREDITS**

**COURSE #813**

**Description:** This course will introduce students to the basic techniques and aesthetics of video production. Students will learn how to use various formats of video equipment including VHS, Digital Hi-8 and mini DV. Students will plan, produce and complete short video productions. Using a hand-on approach, student will learn the skills involved in production planning, script preparation, shooting of a program, and post-production including non-linear editing, assembling music and voice-overs. Students will edit video primarily on Macintosh computers using iMovie, Final Cut Express, and Adobe Premiere. The class will explore the role of television and film in society as well as how to talk about and critique television and film from both a creative and technical point of view.

**Evaluation:** Evaluation will be based on class assignments, quizzes, exams and the quality of the final project.

This course has Expectations for Student Learning 2, 3, 4, 7 and 9 as its primary concern, and also supports Expectations 5, and 8.

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**For students in grades: 9, 10, 11, and 12****Prerequisites: Video Production 1 or permission of the instructor.**

**Description:** This course is geared towards students interested in exploring the world of video production beyond the level of Video Production 1, both technically and conceptually. Students focus on how to produce videos that are self-directed, in-depth productions. Using professional video editing equipment and software such as Final Cut and Adobe Premiere, students will gain advanced knowledge of how to create and edit digital video. Students will also study the style and technique of significant filmmakers, gaining a broader understanding of video and film production from a historical perspective. Students will have the opportunity to gain knowledge and experience in the creation of video assets within a television studio environment and produce videos which may be aired on local cable television. There will also be an emphasis on compiling student videos and programs into larger productions for possible inclusion into the annual student film festival.

**Evaluation:** Evaluation will be based on class assignments, quizzes, exams and the quality of the final project.

This course has Expectations for Student Learning 2, 3, 4, 7, and 9 as its primary concern, and also supports Expectations 5 and 8.

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