

Computer Graphics

Course Code: 10202

Rationale Statement:

This class is computer graphics and falls under the Arts and A/V Career Cluster. This class will teach students how to create graphics on computers and, the representation and manipulation of pictorial data by a computer. The main objective will be to introduce students to the basic elements and skills involved in the creation of computer graphics. It will also demonstrate to students how to apply computer graphics skills and capacities to enhance published content. Students will learn about the connection between computer graphics capacities and skills and workplace career and professional opportunities. The student will learn the fundamentals and tools used to create and manipulate digital graphics.

Suggested grade level: Grades 10-12

Topics covered:

- Careers
- How are graphics used in business
- Fundamentals of computer graphics
- Creating computer graphics, raster or vector
- Tools used to create and manipulate computer graphics
- 2-D and 3-D graphics and basic animation

Core Technical Standards and Examples:

Indicator #1: Explore opportunities in computer graphics	
Bloom's Taxonomy Level	Standard and Examples
Understanding	<p>CG1.1 Summarize career fields and occupations</p> <p>Examples:</p> <ul style="list-style-type: none"> • Research career opportunities by participating in a career fair • Interview a professional working in this field • Explore skills, wages, education, and geographic opportunities in the following areas: photography, design, advertising, print, simulation, modeling, animation, or movies
Indicator #2 – Outline fundamentals related to computer graphics	

Bloom's Taxonomy Level	Standard & Examples
Understanding	<p>CG2.1 Illustrate the use of computer graphics</p> <p>Examples:</p> <ul style="list-style-type: none"> • List where graphics are found • Research impact of brand marketing with computer graphics • Discuss the use of graphics in various business scenarios • Compare uses of graphics in business products
Understanding	<p>GD2.2 Explain legal issues related to computer graphics</p> <p>Examples:</p> <ul style="list-style-type: none"> • Research how to identify copyright materials • Research how to implement a design as a trademark or a copyright • Interpret the law and punishments associated with copyright violations
Analyzing	<p>CG2.3 Outline computer graphic concepts</p> <p>Examples:</p> <ul style="list-style-type: none"> • Complete a vocabulary worksheet with various computer graphic terms such as PPI, DPI, dither, halftone, posterization and etc. • Identify various file types Bitmap, .JPG, .PNG, .GIF, .TIFF, etc. • Paint a picture made up of dots or draw a model based on measurements to demonstrate the difference of raster graphics vs. vector graphics
Analyzing	<p>CG2.4 Differentiate 2D and 3D computer graphic concepts</p> <p>Examples:</p> <ul style="list-style-type: none"> • Research software used in various animation jobs • Demonstrate the differences between 2-D and 3-D graphics • Graph 2d or 3d models
Analyzing	<p>CG2.5 Organize computer color technologies</p> <p>Examples:</p> <ul style="list-style-type: none"> • Research different color technologies such as process, spot or Pantone • Write codes for specific colors in RGB, CMYK or Hexidecimal • Change the hue and saturation of a photo in image editing software
<p>Indicator #3 - Create computer graphics</p>	

Bloom's Taxonomy Level	Standard & Examples
Applying	<p>CG3.1 Use computer graphics equipment</p> <p>Examples:</p> <ul style="list-style-type: none"> • Scan a photo using a scanner to use on computer • Draw an object using a graphics tablet • Research various printers and printing mediums and sizes • Research monitors and graphic resolution quality
Applying	<p>CG3.2 Implement the use of computer graphics software and tools</p> <p>Examples:</p> <ul style="list-style-type: none"> • Create organic shapes using a computer graphic software • Break apart text to reshape it in a computer graphic software • Adjust brightness and contrast of a photograph
Creating	<p>CG3.3 Produce various effects in computer graphic software</p> <p>Examples:</p> <ul style="list-style-type: none"> • Emboss text used in logo • Add a filter to a photograph • Add a drop shadow to a computer graphic object
Indicator #4 - Generate techniques in manipulating graphics	
Bloom's Taxonomy Level	Standard & Examples
Creating	<p>CG4.1 Construct transformations of computer graphics</p> <p>Examples:</p> <ul style="list-style-type: none"> • Graph a mirror image of a object • Rotate, skew, distort or scale an object in computer graphic software • Move the z-axis of a 3D model
Creating	<p>CG4.2 Construct computer graphics animations</p> <p>Examples:</p>

	<ul style="list-style-type: none"> • Create 2d flash animation using a shape tween • Create a flip book to illustrate a hand held animation • Create a photo animation in image editing software
<p style="text-align: center;">Creating</p>	<p>CG4.3 Generate the computer graphics and animations</p> <p>Examples:</p> <ul style="list-style-type: none"> • Publishing computer graphics for sublimation • Determine different mediums to print photos • Render text animation for video • Embed flash .swf in web page