I. **OVERVIEW**
The following information will appear in the 2009 - 2010 catalog

**CMPGR 202 Introduction to Computer Graphics** 3 Units

**Also offered as:** ART - 102: Introduction to Computer Graphics
**Recommended for Success:** Before enrolling in this course, students are strongly advised to have a basic working knowledge of personal computers including: turning on and off a computer system correctly; starting programs, moving and resizing windows, the Start Menu, understanding how a computer is organized; manipulating a mouse, including selecting, double clicking, and dragging items; naming, saving, and deleting files; using portable flash memory and other common storage devices.

Introduction to computer graphics using various applications and tools. Topics explored include but are not limited to: basic compositional concepts, original image creation, photographic editing, scanning, printing, 3D-animation, digital sound editing, and digital drawing.

Field trips are not required. (A-F or P/NP - Student choice) Lecture /Lab
**Transfer:** (CSU, UC) **General Education:** (MJC-GE: Activities) (CSU-GE: C1)

II. **LEARNING CONTEXT**
Given the following learning context, the student who satisfactorily completes this course should be able to achieve the goals specified in Section III, Desired Learning:

A. **COURSE CONTENT**

1. **Required Content:**

   1. Operating System Basics
      a. Starting and exiting application packages
      b. File nomenclature
      c. Path structure
      d. Opening and saving files
      e. Using various input devices (keyboard, mouse, digitizing pen)
   2. Elements of composition and form
      a. Line
      b. Space
      c. Value
      d. Color theory
      e. Linear perspective
   3. Animation Concepts
      a. 2D Cel animation
      b. 3D computer animation
      c. Point of view/camera concepts
      d. Time concepts
   4. Technical Aspects of Computer Animation
      a. Computers in animation/ History of animation
      b. Aspect Ratio
      c. Resolution
      d. Frame rate
      e. Video compression
      f. Image processing/rendering
   5. Technical aspects of Sound in Animation
2. Required Lab Content:

1. Utilization of Operating System Basics
   a. Starting and exiting application packages
   b. File nomenclature
   c. Path structure
   d. Opening and saving files
   e. Using various input devices (keyboard, mouse, digitizing pen)

2. Demonstration of elements of composition and form
   a. Line
   b. Space
   c. Value
   d. Color theory
   e. Linear perspective

3. Demonstration of Animation Concepts
   a. 2D Cel animation
   b. 3D computer animation
   c. Point of view/camera concepts
   d. Time concepts

4. Utilization of Technical Aspects of Computer Animation
   a. Computers in animation/ History of animation
   b. Aspect Ratio
   c. Resolution
   d. Frame rate
   e. Video compression
   f. Image processing/rendering

5. Demonstration of Technical aspects of Sound in Animation
   a. Acquiring/Recording sound
   b. Processing sound
   c. Sound file formats

6. Utilization of Animation Effects and Editing
   a. Overview of editing and effects software

7. Demonstration of scanning and printing techniques
   a. Resolution terminology and theory
   b. Scaling, sizing, and resolution
   c. Output options

B. Enrollment Restrictions

1. Advisories

   Before enrolling in this course, students are strongly advised to have a basic working knowledge of
personal computers including: turning on and off a computer system correctly; starting programs, moving and resizing windows, the Start Menu, understanding how a computer is organized; manipulating a mouse, including selecting, double clicking, and dragging items; naming, saving, and deleting files; using portable flash memory and other common storage devices.

C. **HOURS AND UNITS**

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D. **METHODS OF INSTRUCTION (TYPICAL)**

Instructions of the course might conduct the course using the following method:

1. Lecture/lab demonstrations
2. Hands-on laboratory assignments
3. Use of electronic and hard copy reference documents and books to accomplish assigned tasks
4. Facilitate completion of written assignments
5. Streaming video tutorials
6. Discussion

E. **ASSIGNMENTS (TYPICAL)**

1. **EVIDENCE OF APPROPRIATE WORKLOAD FOR COURSE UNITS**

   Time spent on coursework in addition to hours of instruction (lecture hours)

   a. Practical projects given on a weekly basis.
   b. One major final project consisting of character design, story concept, story boards, and finished 3D animation.
   c. Daily reading of materials.

2. **EVIDENCE OF CRITICAL THINKING**

   Assignments require the appropriate level of critical thinking

   Sample Assignment #1

   Using 3D modeling and Animation Software

   Using primitive objects, apply basic visual composition concepts including value (light and dark), negative space, overlapping shapes, and cropping to create a simple still life arrangement.

   **REQUIREMENTS**

   Use at least one radial light source in addition to the sun. Select the flat, gray sky. Do not apply surface textures to the objects. Strive for an interesting composition that takes into account the position of the objects relative to the camera. A good composition depends not only on the arrangement of the objects, but on the arrangement of shadows and highlights in the scene.

   Sample Assignment #2

   Using 2D Image Editing Software

   Analyze color images and create four distinct compositions using specified color schemes.
REQUIREMENTS

Using the digital image of your face, use 2D image editing software to create a series of color compositions showing complimentary, cool, warm and achromatic color schemes. Each composition will use specific filters to simplify the original image, creating a unique look for each. Change any aberrant colors to coincide with the chosen color scheme.

F. TEXTS AND OTHER READINGS (TYPICAL)


III. DESIRED LEARNING

A. COURSE GOAL

As a result of satisfactory completion of this course, the student should be prepared to:

create and alter digital images and animations using basic art and compositional concepts.

B. STUDENT LEARNING GOALS

Mastery of the following learning goals will enable the student to achieve the overall course goal.

1. Required Learning Goals

Upon satisfactory completion of this course, the student will be able to:

a. Demonstrate how to use the Windows operating system interface
b. Recall the fundamental characteristics of drawing
c. Define color systems
d. Explain various types of perspectives in drawing
e. Discuss form and content of a composition
f. Identify various painting techniques
g. Compose two or three-dimensional still images
h. Compose two or three-dimensional animations
i. Compare film and animation concepts
j. Describe sound concepts
k. Apply scanning and printing techniques

2. Lab Learning Goals

Upon satisfactory completion of the lab portion of this course, the student will be able to:

a. Demonstrate how to use the Windows operating system interface
b. Utilize color systems
c. Explain various types of perspectives in drawing
d. Discuss form and content of a composition  
e. Classify various painting techniques  
f. Compose two or three-dimensional still images  
g. Compose two or three-dimensional animations  
h. Compare film and animation concepts  
i. Describe sound concepts  
j. Apply scanning and printing techniques

IV. METHODS OF ASSESSMENT (TYPICAL)

A. FORMATIVE ASSESSMENT  
   1. In class critiques of digital assignments  
   2. Review of student's participation in discussion and critiques, laboratory performance  
   3. Instructor's evaluation of student's on-going work  
   4. Periodic tests and quizzes throughout the semester

B. SUMMATIVE ASSESSMENT  
   1. Practical Final Project  
   2. Written Final Exam