Introduction to Digital Media (9-12)

Ewing Public Schools
2099 Pennington Road
Ewing, NJ 08618

Board Approval Date: October 24, 2022 Michael Nitti, Superintendent

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In accordance with The Ewing Public Schools' Policy 2230, Course Guides, this curriculum has been reviewed and found to be in compliance with all policies and all affirmative action criteria.

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Course Description and Rationale

This course introduces popular tools and techniques for constructing digital media, including still images, audio, and video. Students will gain exposure to a broad array of industry standard software and compile a personal portfolio. In addition to producing digital media, we also examine the cultural and historical context of such work. How has the existence and use of these new forms transformed our everyday experience? What are the similarities and differences between the so-called digital media revolution and previous revolutions enabled by the emerging technologies, such as television and film?

This course is an introduction to digital media for interactive multimedia through the study of state-of-the-art methods of creating digital media: painting programs, digital image editing, and time-based authoring programs. Computer graphics and digital media combine to make building images and editing graphics easy and effective. Digital media have led to new methods of communications that affect how we work, play and see ourselves and our environment. Through studio and seminar sessions, students will explore ways of constructing types of digital media and consider the aesthetic, technical, and social effects of this work. Critiques of student work, readings, and discussion will examine the evolving formal criteria and social implications of this work.

In this course, students will:

- Examine the potential of digital arts through readings, screenings, demonstrations, discussions, and assignments.
- Learn industry standard tools and techniques for digital image editing, audio production and editing, and video production and editing.
- Become acquainted with current topics and concepts in digital media (image creation and editing, video, sound, media literacy, and more)
- Consider the digital media "revolution" in relation to previous technology and media advances.
- Consider the implications of ubiquitous digital media production and consumption on our everyday culture.
- Consider the ethics of digital manipulation, and the cultural and economic impact of digital reproduction and distribution.
- Compile a portfolio of a diverse array of digital media projects.

Unit 1: Introduction

Why Is This Unit Important?

This course introduces popular tools and techniques for constructing digital media, including still images, audio, and video. Understanding expectations will set students up for success.

Enduring Understandings:

- Students will be familiar with the course content for the semester.
- Students will be introduced to each other and their teachers.
- Students will understand the difference in expectations between a typical high school course and a college level course.
- Students will be introduced with the basic interface, navigation and tools in Photoshop.

Essential Questions:

- Who is in my class and what are their experiences with art and technology?
- Who are my teachers?
- What is Digital Media?
- What careers can be explored in Digital Media?
- What topics will be covered in this course?
- What expectations are there for college level coursework?
- What are the basic tools and navigation in Photoshop?
- What are the best uses for Photoshop?
- What types of files do I use in Photoshop?

Acquired Knowledge:

- Students will understand what content will be covered in the course
- Students will know the expectations for this course and how it differs from a typical high school course.
- Students will be familiar with the basic navigation and tools of Photoshop.
- Students will recognize the best uses for Photoshop.
- Students will differentiate between file types used in Photoshop.

Acquired Skills:

- Opening an image in Photoshop, basic navigation of the software, saving a file
- Basic tools in Photoshop and their applications such as zooming in and out, customizing the interface, and viewing images from different screen modes.
- Difference between file types in Photoshop.

Assessments:

- Assignment: Scavenger Hunt
- Assignment: Intro to Photoshop
- Canvas discussions

Suggested Learning Experiences and Instructional Activities:

- Scavenger hunt using phone cameras.
- Intro to Photoshop activity using images from Scavenger hunt.

Instructional Materials (including, but not limited to):

- Canvas
- Photoshop
- Google Drive
- Cameras on phones
- Video resource

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:

1.5.12 prof.Cr1a
1.512prof.Cr2a

Unit 2: Composition, the Camera and Lighting Basics

Why Is This Unit Important?

The elements of exposure, composition, light, subject matter, moment, and many others all come together to create an image that is presented to a viewer.

Enduring Understandings:

- Students will differentiate between types of composition and how they can affect the success of an image.
- Students will learn and apply their knowledge on how to use a dslr camera.
- Students will be able to apply and identify different types of depth of field.
- Students will be able to differentiate lighting types and how to use it for the most successful images.

Essential Questions:

- What are different types of composition and how does it affect the success of an image?
- Who are some contemporary artists of color who work in Digital Media using camera and lighting?
- What is a color space and color mode in Photoshop?
- How does document size affect my file? How do I adjust the size of a document? Why does document size matter?
- How do I undo a mistake in Photoshop?
- How do I crop and straighten an image?
- What is a layer and why should I use it?
- What effects can I get from adjustment layers and how can I use them?
- What are different ways I can remove something from an image?
- How could I add something to an image?
- What is a layer mask and why should I use it?
- What are the basic functions on the dslr camera?
- What is depth of field and when should I use it?
- What are the different types and characteristics of lighting?
- When should I use natural lighting?
- How does a reflector work and when should I use it?

Acquired Knowledge:

Students will understand:

- Image Composition
- Elements for a successful image
- Depth of Field
- Basics of the DSLR- photo
- Lighting
- Photoshop program overview

Acquired Skills:

- Tools in Photoshop which include color space, color modes, cropping, straightening, document sizes, layers and adjustment layers.
- Students will be able to add and remove items in images with selections, layer masks and content aware features.
- Students will learn basic lighting skills using a variety of specialized lighting equipment.

Assessments:

- Assignments: Depth of field, technical camera
- Canvas discussions
- Lighting labs
- Photo Removal/Addition Project and Critique

Suggested Learning Experiences and Instructional Activities:

- Learning the dslr camera assignment with depth of field
- Class/ Canvas discussion on contemporary artists
- In class lighting assignments using different types of lighting, both natural and studio lights
- Class field trip to TCNJ lighting studio
- End of unit project bringing together all elements learned with a critique following

Instructional Materials (including, but not limited to):

- Canvas
- Photoshop
- Google Drive
- DSLR cameras
- Video resources
- Computers

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:
1.5.12 prof.Cr1a
1.5.12adv.Cr1b
1.5.12accCr3a
1.5.12 acc.Pr4a
1.5.12 acc.Pr6a
1.5.12prof.Re7a
1.5.12 acc.Re7b
1.5.12prof.Cn11a

Unit 3: Color Theory and Graphics for Social Media

Why Is This Unit Important?

Color theory encompasses decades of scientific study and exploration, and the use of theory in designing graphics for social media consumption impacts the reception of the shared digital media.

Enduring Understandings:

- Students will become familiar with basic tools and navigation in Illustrator.
- Students will understand color theory and be able to apply this knowledge to their work.
- Students will be aware of the implications of Copyright and creating digital work.
- Students will learn about social media algorithms, influencers and how to create graphics for specific platforms.

Essential Questions:

- What are the basic tools and navigation in Illustrator?
- What are the best uses for Illustrator?
- Who are some contemporary artists of color who work in Digital Media using Illustrator as a tool?
- What types of files do I use in Illustrator?
- What are the drawing tools in Illustrator?
- What is color theory?
- What are the psychological and cultural implications of color?
- What types of color schemes are there?
- What tools do I use in Illustrator for color?
- What is Copyright and how does it affect what I post on Social Media?
- What are the misconceptions regarding work found on the Internet?
- How do I create graphics specifically for Social Media?
- What is a social media algorithm?
- How do I create graphics for ever- changing algorithms?
- What are ways to grow an audience and monetization on Social Media?

Acquired Knowledge:

Students will learn:

- Basic tools and methods in Illustrator.
- Color Theory and tools designers use for color
- Copyright and image use
- Social Media algorithms, creating graphics specifically for social media.

Acquired Skills:

- Basic navigation and tools in Illustrator
- Selections and drawing shapes
- Color, Strokes, alignment and layers
- Groups and isolation modes
- Applying transformations

Assessments:

- Learning basics of Illustrator through a series of in class activities and labs
- Social Media formatting assignment
- Logo research and discussion
- Logo identity project and critique

Suggested Learning Experiences and Instructional Activities:

- Illustrator activities learning the tools
- Canvas discussion for logo research
- Class/canvas discussion on social media influencers.
- End of unit project bringing together all elements learned with a critique following.

Instructional Materials (including, but not limited to):

- Adobe Creative Cloud
- Color Palette Generator
- Interactive Color Wheel
- Adobe Color Wheel
- Video resources

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:
1.5.12adv.Cr2a
1.5.12adv.Cr2b
1.5.12adv.Cr2c
1.5.12 acc.Pr4a
1.5.12 prof.Cr1a
1.5.12adv.Cr1b
1.5.12accCr3a
1.5.12 acc.Pr6a
1.5.12prof.Re7a
1.5.12 acc.Re7b
1.5.12prof.Cn11a

Unit 4: Design and Prototyping

Why Is This Unit Important?

Design thinking is essentially a problem-solving tool, and students will strengthen their working knowledge of and comfort with the design process.

Enduring Understandings:

- Students will be able to work through their projects in an iterative fashion to use feedback from others to make improvements to their design.
- Students will be able to work in a more efficient manner to understand and test their design incrementally to achieve their desired outcome.
- Students will be able to understand and adapt the Engineering design process to be a model of problem solving techniques and skills to complete their own work.
- Students will be exposed to empathetic design perspectives to help understand how to incorporate empathy into their designs.

Essential Questions:

- What is iterative design?
- How can we integrate an iterative design process into our workflow?
- What is rapid prototyping?
- How to adapt rapid prototyping into a project? What does that look like?
- How to view and define success?
- What is the Engineering design process?
- How to adapt the Engineering ensign process to fit our creative design process?
- What is designing with empathy?
- How to create through the lens of empathetic user design?

Acquired Knowledge:

Students will learn:

- More advanced skills in Illustrator
- How to use a laser cutter and vinyl printer

Acquired Skills:

- Drawing by construction
- Drawing tools
- Gradients, patterns and symbols
- Using Type
- Adding Images
- Image Trace
- Recoloring Artwork
- Working with Artboards
- Prepping work for the laser cutter
- Prepping work for the vinyl printer

Assessments:

- Labs and activities
- Canvas discussions
- Laser cutting and vinyl printing logo project

Suggested Learning Experiences and Instructional Activities:

- Class/ Canvas discussion on contemporary artists using Illustrator
- Live streaming discussion
- Class field trip to Makerspace on TCNJ campus
- End of unit project bringing together all elements learned with a critique following

Instructional Materials (including, but not limited to):

- Computers
- Canvas Learning Management System
- Google Workspace
- Adobe Creative Cloud

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:
1.5.12 prof.Cr1a
1.5.12adv.Cr1b
1.5.12accCr3a
1.5.12 acc.Pr4a
1.5.12 acc.Pr6a
1.5.12prof.Re7a
1.5.12 acc.Re7b
1.5.12prof.Cn11a

Unit 5: Video

Why Is This Unit Important?

Messages conveyed in video are more engaging, and they lead to a higher retention rate.

Enduring Understandings:

- Students will learn how to use a DSLR camera to shoot video.
- Students will be able to identify how different settings on a camera affect how their video comes out.
- Students will understand how to use and when to use different types of tripods.
- Students will be able to use and identify specific video shooting angles to portray specific emotions/feelings in a scene.
- Students will learn the basics of how to use and import video in Premiere.
- Students will learn basic editing tools in Premiere.

Essential Questions:

- What is Adobe Premiere used for?
- What file types are used in Premiere?
- How do I use a DSLR camera for video?
- What do the different settings on the camera adjust on my video?
- Why would I use a fluid head tripod vs a static tripod?
- What are different types of angles you can shoot with a video camera?
- How could different angle shots change the perception of the video?
- What are the basic tools and how to navigate Premiere?
- How do I import video Premiere?
- How do I set keyframes?
- How do I layer multiple levels of footage?
- How do I split and combine video clips?
- How do I incorporate text to my video?

Acquired Knowledge:

Students will learn:

- Basics of the DSLR- video
- Using the DSLR and tripod to shoot video footage.
- Premiere program overview
- Basic editing and effects in Premiere

Acquired Skills:

- Introduction to workspace, tools and interface of Premiere
- Setting up and organizing media
- Basic editing
- Working with effects
- Transitions

Assessments:

- Canvas discussions
- Assignments/ labs
- Final project and critique

Suggested Learning Experiences and Instructional Activities:

- Class/ Canvas discussion on contemporary artists
- Video shooting assignment
- Premiere learning and practice activities/labs
- Video project

Instructional Materials (including, but not limited to):

- Cameras
- Computers
- Adobe
- Canvas

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:
1.5.12 prof.Cr1a
1.5.12adv.Cr1b
1.5.12accCr3a
1.5.12 acc.Pr4a
1.5.12 acc.Pr6a
1.5.12prof.Re7a
1.5.12 acc.Re7b
1.5.12prof.Cn11a

Unit 6: Storyboarding and Sound

Why Is This Unit Important?

A storyboard visually guides creators throughout the production process. Sound helps deliver information, increases the production value, emphasizes the message, and elevates the video quality.

Enduring Understandings:

- Students will be able to understand the differences of a storyboard and shot list and why you would use them.
- Students will be able to use storyboards and shot lists to prepare for video shoots.
- Students will have a basic understanding of key aspects of storytelling.
- Students will be exposed to a variety of different microphones and when properly use each microphone.
- Students will have a basic understanding with sound manipulation using Premiere.

Essential Questions:

- What is a storyboard?
- What is a shot list?
- What are the differences between a storyboard and shot list and why would you use each one?
- How can you tell a story with video and audio?
- What are different types of microphones?
- How are different types of microphones used?
- How could I add sound design to a video to enhance viewing experience?
- How do I add and adjust sound in Premiere?
- What are different ways sound plays a role in videos?
- How do I know my audio levels are correct?

Acquired Knowledge:

Students will learn:

- Advanced Premiere editing
- Adding Sound to video
- Storyboarding and organization of a video

Acquired Skills:

- More advanced Premiere tools and techniques
- Basic Audio editing and music design
- Using microphones and adding audio to video

Assessments:

- Canvas discussions
- Assignments/labs
- Check in project and mid-way critique for final

Suggested Learning Experiences and Instructional Activities:

- Evaluate and discuss media as a group- breaking down headlines and coverage of current events, social media, etc. to dissect for intent, bias, etc.

Instructional Materials (including, but not limited to):

- Class/ Canvas discussion on contemporary video artists
- Audio labs/assignments
- Assignments working up to final project

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:
1.5.12 prof.Cr1a
1.5.12adv.Cr1b
1.5.12accCr3a
1.5.12 acc.Pr4a
1.5.12 acc.Pr6a
1.5.12prof.Re7a
1.5.12 acc.Re7b
1.5.12prof.Cn11a
1.5.12prof.Cn10a

Unit 7: Advanced Video Editing

Why Is This Unit Important?

Messages conveyed in video are more engaging, and they lead to a higher retention rate. Advanced video editing skills build upon the benefits of this form of digital media.

Enduring Understandings:

- Students will have a more advanced knowledge on using Premiere.
- Students will be able to perform the entire creative process from filming to a finished rendered video in Premiere.

Essential Questions:

- How to shoot video with editing?(shoot to edit)
- How do I add color correction to a video?
- How do I create and time sound design with my video?
- What are layer masks in Premier and how are they different from photoshop?
- What are LUT's, and how are they applied to your videos?
- How do I adjust speed ramping to allow better transitions between clips?
- How do I create complex transitions between clips?
- How can I incorporate stock footage or B-roll into my video?
- When would I use stock footage or B-roll in my footage?
- How to apply different effects to my video?

Acquired Knowledge:

- Advanced Premiere
- Start to finish video shooting, editing and refining

Acquired Skills:

- Manipulating clip speed
- Basic color correction
- Working with titles
- Finishing and exporting
- Understanding when and how to incorporate sound design

Assessments:

- Canvas discussions
- Assignments/labs
- Final project and critique

Suggested Learning Experiences and Instructional Activities:

- Class/canvas discussion on contemporary artists.
- Final project check in
- Final project presentation and critique

Instructional Materials (including, but not limited to):

- Computers
- Canvas/ Learning Management System
- Cameras
- Adobe

Computer Science and Design Thinking - 2020 New Jersey Student Learning Standards:
1.5.12 prof.Cr1a
1.5.12adv.Cr1b
1.5.12accCr3a
1.5.12 acc.Pr4a
1.5.12 acc.Pr6a
1.5.12prof.Re7a
1.5.12 acc.Re7b
1.5.12prof.Cn11a

Accommodations

Special Education Students

Peer to peer assistance; reduce / revise assignments as per IEP; use manipulatives; calculators; extra time to complete task; provide individual & small group help; notes, and study guides; provide background knowledge; flexible grouping; peer grouping; visual demonstration; text magnification; color coding; repetition; pre-teaching; chunking; differentiating content; preferential seating; rephrasing of directions

English Language Learners

Use consistent, simplified language; provide bilingual partner; provide cooperative learning opportunities; use modeling; use visual aids & manipulatives; scaffolding; chunking the content; subtitles for videos

Students at Risk of Failure

Foster positive relationships; use mental models; provide help formulating specific questions; scaffolding; targeted support

Gifted Students

Provide additional enrichment activity involving demonstration of knowledge, or complementary assignments; independent practice; extension activities

Suggested Pacing

Unit (topic)	Anticipated time frame (days)
Introduction	4 days
Composition, the Camera and Lighting Basics	20 days
Color Theory and Graphics for Social Media	10-15 days
Design and Prototyping	10-15 days
Video	10-15 days
Storyboarding and Sound	10-15 days
Advanced Video Editing	10-15 days

Sample Standards Integration

During this course, in addition to the New Jersey Student Learning Standards for Computer Science and Design Thinking, students will work on developing, to an age appropriate level, standards across content areas, including:

Career Readiness, Life Literacies, and Key Skills
9.4.8.CI.4: Explore the role of creativity and innovation in career pathways and industries.
Students will connect the concepts and skills in this course to potential future careers.

Social Studies
6.1.12.EconNE.16.b: Evaluate the economic, political, and social impact of new and emerging technologies on individuals and nations.
Students will discuss the positive and negative impacts of technological advancements.

Science
MS-PS1-6: Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.
Students will employ the design cycle to complete projects based on specific guidelines.

Mathematics
NJSLS-M.8.SP.A.2: Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit (e.g. line of best fit) by judging the closeness of the data points to the line.
Students will interpret, analyze, and discuss data on diversity in technology careers and education.

English Language Arts
NJSLSA.W6: Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.
Students will engage in written discussion utilizing the district's digital learning environment.

Diversity, Equity & Inclusion

All students deserve equitable access (N.J.A.C. 6A:7) to a high-quality education that is inclusive and reflective of the rich diversity of our state. This curriculum will include learning activities that meet the legislative requirements of the 2019 History and Contributions of Individuals with Disabilities and LGBT (N.J.S.A. 18A:35-4.35-6) and Diversity and Inclusion statutes (N.J.S.A. 18A:35-4.36a) that may include:

- Students work in groups to develop a slide deck highlighting LGBTQ+ pioneers of computer science, such as Alan Turing, Edith Windsor, etc.
- Students will interpret, analyze, evaluate, and discuss data involving diversity in STEM fields (this may include the number of women enrolled in technology education programs, representation of people with disabilities in video games, etc.).