

CURRICULUM PROFICIENCY REQUIREMENTS

Department: Applied Technology/Industrial Arts

Course No.: 080710

Course Title: Digital Photography

Course Length: .5 semester / 9 weeks

Credits: 2.5

Level: Heterogeneous

Prerequisite: Junior or Senior grade status

Overview and Course Description:

Photography is an ever-evolving visual communications tool for everybody, but Especially important for those pursuing careers in communications and art. Beginning with the study of cameras and quality picture-making composition, students will explore an overview of traditional film and chemical-based photo processing and transition to the many aspects of digital photography. Learning by doing, students will use digital cameras for creating a variety of project images they will computer-process and enhance using professional digital imaging software. Photographic image presentations in the forms of mounted prints, Emailed images, digital photo databases and slide shows, and Web galleries will showcase each student's portfolio of applications. Careers in the many fields of photography will be investigated.

Reference Materials:

No particular textbook has been chosen for this course; instead, many photography reference books, instructional videos, and Internet sources will be used throughout the course. These reference sources may include, but are not limited to: classroom texts and school library books & magazines covering photographic principles and practices, how-to instructional media & handouts, camera and other equipment operation manuals, software training materials, and a variety of websites associated with photography.

Goals, Objectives, and NJSLS)

At the conclusion of the course, 80% of the students enrolled will achieve a grade of 80 or better on quizzes, tests, classroom activities, photo projects, and research reports developed by the instructor to determine the students' ability to:

- A. Identify safety considerations associated with digital photography applications in general shops, computer classroom, studio with electrical equipment, and in-the-field while on-location. (NJSLS: 11-12.LAL3.4, S5.1, CRP.K-12.CRP5)
- B. Identify key points on a photo history timeline, and explain at least one societal impact of photography and one trend of photography in the future. (NJSLS: VPA.1.2.12.A, 11-12.LAL3.1, 3.5, S5.2)
- C. Identify common camera components, camera types and uses for them. (NJSLS: 11-12.LAL3.1, M4.1, TECH.8.2.12.B)
- D. Identify five guidelines of photographic composition, and illustrate examples of each in published photographs. (NJSLS: VPA.1.1.12, VPA.1.3.12, 11-12.LAL3.1, 3.3, 3.4, 3.5, M4.1)
- E. Critique an image, distinguishing at least three positive points related to quality picture-making techniques, when given a random photographic image. (NJSLS: VPA.1.4.12.A, 11-12.LAL3.3, 3.4, 3.5)
- F. Visually compose and photograph at least six assigned subjects using digital cameras. (NJSLS: VPA.1.3.12D, 1.3, 11-12.LAL3.5, M4.2, S5.1, 5.7, TECH.8.1.12.B)
- G. Explain a studio lighting equipment arrangement when given a specific direction of light to be produced. (NJSLS: 11-12.LAL3.3, 3.4, S5.1, CRP.K-12.CRP10)

- H. Apply image sizing commands to produce a specified size digital photo image printout using school-provided digital image processing software. (NJSLS: 11-12.LAL3.5, M4.1, 4.2, S5.1, TECH.8.1.12.A)
- I. Apply corrective commands for image brightness and contrast in a personally photographed and downloaded digital color image converted to black & white tones using school-provided digital image processing software. (NJSLS: 11-12.LAL3.5, M4.1, S5.1, TECH.8.1.12.B)
- J. Apply corrective commands for color hue and saturation in a personally photographed and downloaded digital color image using school-provided digital image processing software. (NJSLS: VPA.I.3.12.D, 11-12.LAL3.5, M4.1, S5.1, TECH.8.1.12.D)
- K. Apply manipulative commands on a scanned-in photo image creating a retouched view of the original image using school-provided digital image processing software. (NJSLS: 11-12.LAL3.5, S5.1, TECH.8.1.12.D.CS2)
- L. Transmit an attachment of a personally photographed digital photo image to a message explaining an attachment using school-provided personal email account. (NJSLS: 11-12.LAL3.2, TECH.8.1.12.F)
- M. Prepare at least one matte board mounted personal photographic print for presentation using the dry mount heat press method. (NJSLS: VPA.1.2.12.A, 11-12.LAL3.5, M4.2)
- N. Develop a digital photo image catalog database for browsing/ sorting of all of the personal image files saved during the course. (NJSLS: 11-12.LAL3.5, S5.1, TECH.8.1.12.B)
- O. Produce and then, verbally introduce and present to the class a digital slide show of at least 10 finished personal photo images. (NJSLS: VPA.1.2.12.A, 11-12.LAL3.3, 3.4, 3.5, TECH.8.1.12.A)
- P. Incorporate at least one personal photo image in a course-produced web gallery exhibit. (NJSLS: 11-12.LAL3.5, TECH.8.1.12.D)
- Q. Identify several types/fields of photography, choose one, research and prepare a written report explaining the career awareness/preparation needed for a photographic occupation in the associated field. (NJSLS: 11-12.LAL3.1, 3.2, 3.5, TECH.8.1.12.A, CRP.K-12.CRP10)

Course Content Units and Time Allocations

Unit	Subject	Approx. Time Allocation
*	Orientation/ Proficiencies / Expectations / Guidelines	1 day
1.	Safety in Photography	2 days
2.	History & Future of Photography	2 day
3.	Camera Fundamentals	5 days
4.	Techniques for Quality Picture-Making Composition	7 days
5.	Digital Input Devices	3 days
6.	Computerized Digital Photo Imaging	2 days
7.	Photo Image Processing Software-Adobe PhotoShop	10 days
8.	Light Physics and Color Theory	2 days
9.	Traditional Film & Chemical-Based Photo Processing	2 days
10.	Photographic Lighting Techniques	10 days
11.	Digital Photo Image Manipulation Techniques	15 days
12.	Digital Output Devices	1 day
13.	Digital Photo Image File Management	7 days
14.	Photographic Image Presentation	15 days
15.	Careers in Photography	2 days
-*	Course Review & Examination	2 days

Course Content Unit Outlines

- A. * Orientation / Proficiencies / Expectations / Guidelines**
 - 1. General overview of Curriculum Proficiency Requirements
 - 2. Digital Photography Course Survey completion
 - 3. Digital Photography Course Pre-Test completion
 - 4. Expectations/ Guidelines for Photo students

- B. Unit 1. Safety in Photography**
 - 1. General Applied Technology/ Industrial Arts Department shop safety
 - 2. Classroom/ studio safety
 - 3. Basic electrical safety
 - 4. In-the-field safety while On-location
 - 5. Digital Photography Course Safety Test & review (mandatory)

- C. Unit 2. History & Future of Photography**
 - 1. Background leading to photography
 - 2. Highlights of historical timeline
 - 3. Impact of photography on society
 - 4. Future trends in photography

- D. Unit 3. Camera Fundamentals**
 - 1. Common components in all cameras
 - 2. Camera types and special uses
 - 3. Camera controls and operation
 - 4. Camera handling and care

- E. Unit 4. Techniques for Quality Picture-Making**
 - 1. Artistic design, photo composition and perception
 - 2. Manipulating depth of field
 - 3. Controlling motion/ action
 - 4. Using camera accessories
 - 5. Image evaluation & critiquing

- F. Unit 5. Digital Input Devices**
 - 1. Digital cameras - beyond "point & shoot"
 - 2. Flatbed scanners and reflection scanning
 - 3. Film scanners and transparency scanning
 - 4. CD ROM and other memory media
 - 5. Input resolution and file sizes
 - 6. Acquiring Images

- G. Unit 6. Computerized Digital Photo Imaging**
 - 1. Digital technology
 - 2. Computer processing & image file types

- H. Unit 7. Photo Image Processing Software-Adobe PhotoShop**
 - 1. Working with computer drives, folders, & files
 - 2. PhotoShop menus, tools & commands
 - 3. Working with initial image adjustments
 - 4. Producing digital prints in black & white

- I. Unit 8. Light Physics & Color Theory**
 - 1. Electromagnetic spectrum
 - 2. Properties of light
 - 3. The makeup of color
 - 4. Manipulating color
- J. Unit 9. Traditional Film & Chemical-Based Photo Processing**
 - 1. Film and photo emulsion technology
 - 2. The darkroom and chemical processing
 - 3. Photographic printmaking
- K. Unit 10. Photographic Lighting Techniques**
 - 1. Light direction
 - 2. Illumination equipment
 - 3. Photographing in natural light
 - 4. Photographing in artificial light
 - 5. Studio lighting set-up
- L. Unit 11. Digital Photo Image Manipulation Techniques**
 - 1. Advanced image adjustments
 - 2. Making color corrections
 - 3. Enhancing the photo image
 - 4. Manipulating for special effects
 - 5. Photo retouching & restoration
- M. Unit 12. Digital Output Devices**
 - 1. Printers of various types
 - 2. CD ROM storage
 - 3. Video and projection
 - 4. Internet
 - 5. Commercial online print services
- N. Unit 13. Digital Photo Image File Management**
 - 1. Storage methods
 - 2. Photo database software
 - 3. Cataloging and organizing photo files
 - 4. Sorting and search methods using file data
- O. Unit 14. Photographic Image Presentation**
 - 1. Print mounting
 - 2. E-mail attachments
 - 3. Slide shows
 - 4. Web albums and galleries
 - 5. Portfolio & exhibition
- P. Unit 15. Careers in Photography**
 - 1. Types of photography
 - 2. Occupations in the field
 - 3. Planning for further training
- Q. - * - Course Review & Examination**
 - 1. Objectives review
 - 2. Final exam (mandatory)
 - 3. Photography course post-test completion

Photo and Research Projects Related to Course Content Units

1. Emphasizing primary artistic design elements in photos/ B&W digital images. (Unit 4)
2. Short depth of field camera manipulation photos/ B&W digital image/ print. (Unit 4)
3. Motion blur or stop action camera manipulation photos/ B&W digital image/print. (Unit 4)
4. Photographic composition - building architecture with person photos/ B&W digital image/ print. (Unit 4)
5. Photo Essay- 3 or 4 picture story/ B&W & color digital images/ prints. (Units 4, 7)
6. Panorama or Postcard landscape, cityscape, or seascape photos/ color digital image/ print. (Units 4, 7, 11)
7. Studio lighting portrait or still life photos / color digital image/ print. (Unit 4, 7, 10, 11)
8. PhotoShop special effect filter manipulation digital image/ print. (Units 7, 11)
9. Scanned print PhotoShop photo restoration digital image/ print. (Units 5, 7, 11)
10. Digital photo image catalog database for browsing/ sorting. (Unit 13)
11. Thermal drymounted print for presentation. (Unit 14)
12. E-mailed photo image. (Unit 14)
13. Portfolio digital slide show. (Unit 14)
14. Web gallery exhibit. (Unit 14)
15. Photographic industry occupation research report. (Unit 15)

Course Requirements

- A. Participate in lectures, discussions, demonstrations, critiques, quizzes, tests, research reports, photo project work, and classroom/lab activities, exhibiting safe work practices and clean maintenance procedures.
- B. Maintain a personal book for your classroom lesson notes, assignments, directions, etc. and a classroom file for lesson/project handouts, project work in-progress and completed, and critiques/ evaluations. (Your personal notes will be spot-evaluated for a 5% portion of your Report Card grade.)
- C. Photograph images and scenes for assigned projects during current semester, and outside of class period time unless instructor-specified, using school-loaned cameras or personal cameras.
- D. Perform all computer image-processing (downloads excluded) for assigned projects using school computers and software.
- E. Demonstrate proficiency in operating digital cameras for optimum image output on assigned projects.
- F. Demonstrate proficiency in operating Adobe PhotoShop software for digital photo-editing and printmaking procedures on assigned projects.
- G. Demonstrate proficiency in the use of other course-related equipment, including but not limited to: MS Windows-based computers and printers, digital scanner, studio lighting equipment / accessories, dry mount heat press, and computerized image presentation software / hardware.
- H. Meet the attendance and tardiness policies as outlined in the student handbook.
- I. Strictly adhere to the school district's computer network policies and procedures as previously personally agreed to on the high school's "Acceptable Use Form"; and additionally & specifically, not to log onto the Internet during class period time, unless instructor-specified or approved.
- J. Take the course final exam (unless senior exemption criteria met and approved by instructor).

Month	September- Q1, November- Q2, January/February- Q3, April- Q4
Topic 1	Digital Photography Course Intro and Pre-Testing
Big Idea	
Orientation to the course content, requirements, proficiency level and behavior expectations along with assessment of incoming student knowledge of photography.	
Essential Questions	
<ul style="list-style-type: none"> • What is photography and how has it evolved lately into a digital process? • What areas of photography will be explored in the Digital Photography course? • What photo and research projects will be accomplished in the course? • What are the student requirements in the Digital Photography course? • How is the course grade determined? • What are the teacher expectations for student behavior in the Digital Photography course? 	
Enduring Understandings	
<ul style="list-style-type: none"> • Photography is an ever-evolving visual communications tool for everybody and allows the picture-maker (photographer) to convey his/her views through artistic expression, journalistic story-telling, or to further convey subjects' meanings/views through the recording of such expression. • Digital Photography is the latest process used to record and present visual images and uses electronic circuitry and computer technology along with traditional mechanical devices and systems to accomplish the recording and presenting. • Digital Photography Course Outline • Student responsibilities 	
NJSLS	TECH.8.1.12.A.CS1
Key Concepts and Skills	
<ul style="list-style-type: none"> • Digital Photography Course Description • Course Unit Outlines • Course Requirements • Proficiency Level • Student Behavior Expectations 	
Learning Activities	
<ul style="list-style-type: none"> • Digital Photography Course Outline distribution and teacher presentation • Teacher contact information • Student Notebook requirement • Student use of school cameras & accessories including borrowing and explicit return policy • Student behavior while using school computers, software, and peripheral equipment • Extra Help Days • Internet online website (www.quia.com) student acct. sign-up for course testing and project critique use • Q&A period for students 	

Assessments

- Student/Parent Signature Acknowledgement Form for course outline & requirements.
- OTHS Digital Photography Course Pre-Test (online; department purposes only).

Month	September- Q1, November- Q2, January/February- Q3, April- Q4
Topic 2	Safety in Photography
Big Idea	
Students will demonstrate safe work habits when handling photographic, computer, and electrical equipment and when producing photo project assignments.	
Essential Questions	
<ul style="list-style-type: none"> • What general safety measures should I be aware of in the classroom environment? • What safety measures should I be aware of when making photographs with electronic digital cameras on location outside the classroom? • What safety measures should I be aware of when making photographs with electronic digital cameras and electrical lighting apparatus in the studio/ classroom? • What electrical safety measures should I be aware of when using computer equipment and printers in the classroom? • What safety measures should I be aware of when using various paper trimmers and electrical dry mount heat press equipment in the classroom? • What physical responses should I conduct in the event of personal injury, peer injury, or school evacuation requirements? 	
Enduring Understandings	
<ul style="list-style-type: none"> • Following safety rules prevents personal injury. • Use of electricity requires safe measures and awareness. • Hazardous conditions require personal attention and typically require evacuation. • Tools and equipment associated with photography requires safe measures and awareness. 	
NJSLS	TECH.8.2.12.B.1
Key Concepts and Skills	
<ul style="list-style-type: none"> • Be aware of surroundings in the classroom/ studio regarding locations of exits, potential evacuation hazards, electrical power switches, telephone intercoms, and fire extinguishers. • All electrical equipment, whether battery-powered or AC-powered, can be a source of electrical shock and/or fire hazard. • Liquids and electrical equipment don't mix well together. No drinks or water bottles should be in the vicinity of computers and other electrical equipment. • Studio lamps and heat press equipment can get hot enough to cause skin burns. • Rotary and shear paper trimmers are sharp enough to cause skin cuts. • Aiming a digital camera toward a bright midday sun can cause damage to the photographer's eyes as well as the camera's electronic sensor. 	
Learning Activities	
<ul style="list-style-type: none"> • Lecture presentation on key concepts. 	

- Demonstration of various safety problems and how to remedy them.

Assessments

- OTHS Digital Photography Safety Test must be passed by students enrolled in this Applied Technology course as required by departmental guidelines.
- Instructor observation of safe work practices throughout the course.

Month	September- Q1, November- Q2, January/February- Q3, April- Q4
Topic 3	History and Future of Photography
Big Idea	
<p>Photography is “light graphics”, originally combining scientific physics with two-dimensional artistic expression. Scientific chemistry created the means to record images permanently and allowed photography to become one of society’s prominent forms of visual communication. Electronic and computer technology altered the recording processes and is taking photography to the next frontier of three-dimensional visual communications and artistic expression.</p>	
Essential Questions	
<ul style="list-style-type: none"> • How are 2-D artistic expression and visual communications linked? • How has photography changed the culture of society? 	
Enduring Understandings	
<ul style="list-style-type: none"> • Photography evolved as a tool to help 2-D artists express their views more accurately. • As technological advancements were made, photography became a tool of mass communication (specifically visual communication), helping to inform, educate, and persuade society’s members. • The digital revolution is forever changing many of the mechanics of photography, and is propelling the medium to the forefront of visual communications. 	
NJSLS	VPA.1.4.12.B; TECH.8.1.12.A.1, TECH.8.1.12.D.5, TECH.8.1.12.F.1
Key Concepts and Skills	
<ul style="list-style-type: none"> • Explanation of camera obscura (darkened chamber) principle. • Camera obscura allowed two-dimension artists to more accurately draw size and perspective. • Scientific physics of a lens made camera obscura images brighter and more focused. • Scientific chemistry created a light-sensitive emulsion able to record the camera obscura image. Photography was born. • As a visual communications tool, photographs can inform, educate, and persuade the viewer. • Technological improvements brought photos to the masses of society, helping in the fields of journalism, advertising, science, & medicine. • Electronics and computer technologies brought about the digital revolution in photography. • Frontiers of photography are being explored with changes from 2-D to 3-D photographic representation, and with the medical replacement of human eyesight. 	
Learning Activities	
<ul style="list-style-type: none"> • Lecture presentation on key concepts. • Handout on historical timeline related to the art and science of photography. 	

- Exploratory research on future trends and inventions in the fields of photography

Assessments

- Position statements on the positive or negative effect of photographic images on our society.
- Evaluative testing for retention of key concepts.

Month	September- Q1, November- Q2, January/February- Q3, April- Q4
Topic 4	Camera Fundamentals
Big Idea	
<p>The camera records images in photography. Originally, cameras were very mechanical devices but have become increasingly electronic in many mechanisms. Digital cameras have electronic features to allow the photographer to preview a scene and most important, to review images created immediately after exposure. Electronic and computer technologies are making the picture-making process more accurate and simpler but better and better than before.</p>	
Essential Questions	
<ul style="list-style-type: none"> • How is the camera an extension of the human eye? • What are the common components in all cameras? • What are the various camera types and special uses? • How does the photographer operate the camera controls? • How is the camera properly handled and cared for? 	
Enduring Understandings	
<ul style="list-style-type: none"> • All cameras have six common components. • Traditional cameras record images on film while digital cameras record images electronically. • The amount of, and direction of, light on a scene to be photographed will affect the visual quality of the photograph being made. • The physical stability of the camera can affect the visual quality of the photograph being made. Handheld cameras can produce blurry pictures. 	
NJSLS	VPA.1.4.12.A; TECH.8.2.12.A.2, TECH.8.2.12.B.4
Key Concepts and Skills	
<ul style="list-style-type: none"> • Camera parts: light-tight chamber, lens (focus), shutter(time control), aperture (volume control), viewfinder, recording device (film or image sensor). • Rangefinder and single lens reflex (SLR) viewing systems. • Film and digital cameras. • Exposure controls in camera: light on scene determines time lapse of shutter (speeds) and the volume size of lens opening (aperture). • Skills needed in holding camera for sharply focused photographs. • Maintenance care for optimum picture quality. 	
Learning Activities	
<ul style="list-style-type: none"> • Lecture presentation on key concepts. • Camera handling demonstration. • Student photo-making session outside of classroom. 	

Assessments

- Visual review and commentary on visual quality of photographs made during student photo-making session.
- Evaluative testing for retention and understanding of key concepts.
- Appropriate use of camera controls and camera handling & maintenance are evaluated in each individual photo project assignment.

Month	September- Q1, November- Q2, January/February- Q3, April- Q4
Topic 5	Techniques for Quality Picture-Making
Big Idea	
<p>The photographer uses artistic design elements, photocomposition guidelines and the camera's controls and auxiliary equipment to emphasize the subject and communicate expression and meaning in each photographic image being created.</p>	
Essential Questions	
<ul style="list-style-type: none"> • How can I visually communicate my feelings and views? • How can I help to visually communicate a subject's mood or view? • How can viewing and judging other photographs help me to more effectively communicate my view and express myself? 	
Enduring Understandings	
<ul style="list-style-type: none"> • The artist can move the viewer's eye toward the subject in a scene. • Understanding the technical specs. of tools and equipment can allow one to express creativity optimally. • High quality photographs require sound knowledge of the equipment used to create the image. • Evaluating and interpreting the expression or story in other photographs fosters one's own creativity and communicative skills. 	
NJSLS	VPA.1.1.12.D; VPA.1.2.12.A; VPA.1.3.12.D; VPA.1.4.12.A; TECH.8.1.12.A.1; T E C H . 8.2.12.C.1
Key Concepts and Skills	
<ul style="list-style-type: none"> • Artistic design elements include: line, shape/form, and texture. (Also, color; covered later in course.) • Guidelines of photocomposition include: simplicity, rule of thirds, leading lines, balance, framing, avoiding mergers, among others. • Depth of field in a photo can be manipulated by changing the lens aperture opening. • Motion/stop action in a photo can be manipulated by changing the shutter speed. • Varying the lens focal length can change the illusion of space and perspective in a photo. • Use of camera accessories and auxiliary equipment can help to increase the quality of photographs being made. • Critiquing of photographs includes the evaluations of communicative value, presentation, and technical elements. 	
Learning Activities	
<ul style="list-style-type: none"> • Lecture presentation on key concepts. • Video on Elements of Design and Photocomposition. • Handouts on shutter speeds, f-stops, digital camera icon settings. • Handout from Kodak, To Create A Photograph. 	

- Photo Project Assignment #1- Emphasis on Elements of Design.
- Photo Print Project Assignment #2- Short Depth of Field.
- Photo Print Project Assignment #3- Motion Blur or Stop Action.
- Photo Print Project Assignment #4- Building Architecture w/ Person.
- Self-critiques of submitted photo print projects.
- Critiquing/discussion of another class period's photographic prints.

Assessments

- Summary paper on Kodak article, To Create A Photograph.
- Evaluative testing for retention and understanding of key concepts.
- Photo print projects are evaluated with rubrics for communicative value, presentation, technical elements, and fulfillment of the assignment.

Month	October/Nov.- Q1, December/Jan.- Q2, March/Apr.- Q3, May/June- Q4
Topic 6	Digital Photo Image Processing and Manipulation
Big Idea	
<p>The photographic image is processed digitally by computer with photo imaging software allowing creative and technical aspects of the photographic image to be manipulated for optimum presentation.</p>	
Essential Questions	
<ul style="list-style-type: none"> • What makes a photograph have high quality? • What determines whether a photograph should match the original scene 100% (exactly)? • What happens when corrective adjustments are made out of order in Adobe PhotoShop? 	
Enduring Understandings	
<ul style="list-style-type: none"> • A photograph manipulated through digital imaging software can be made to “lie” or be inaccurate in detail. • The technical quality of a photographic print can be maintained or made better through the correct use of digital photo imaging software. • Adobe Systems Inc. PhotoShop provides the tools for the photographer to communicate and express visual feelings in a multitude of ways through digital photo imaging. 	
NJSLS	VPA.1.2.12.A; VPA.1.3.12.D; VPA.1.4.12.A; VPA.1.4.12.A; VPA.1.4.12.A; TECH. 8.2.12.D.1
Key Concepts and Skills	
<ul style="list-style-type: none"> • Photo image computer files are commonly transferred from the digital camera or its memory card, to the computer as .jpg files (universal-type Joint Photographic Experts Group [JPEG, shortened to .jpg]). Film and print scanners offer an additional method of creating digital image files. • PhotoShop is the industry-standard photo correction/manipulation software and is manufactured by Adobe Systems Inc. • Adobe’s PhotoShop program works with many different image file types, but is primarily designed around its proprietary file type, .psd (PhotoShop document). • PhotoShop has basic tools and commands to adjust image cropping, straightening, perspective correction, document size, resolution, tonal range levels, shadow/highlight detail, brightness, and contrast. Additional basic adjustments for color images include hue/saturation and color balance. • PhotoShop has intermediate tools and commands to selectively darken or lighten (burn/dodge) image areas, selectively color/tint (paint) image areas, selectively blur or sharpen image areas, and add type to an image, among others. • PhotoShop has more advanced tools and commands to skillfully enhance, retouch, restore, manipulate, and filter images. • Photo image files can be presented via computer monitors, electronic image frames, video, screen projection, or traditionally, as photographic prints from laser and/or inkjet photoprinters. 	

Learning Activities

- Lecture presentation on key concepts.
- Demonstrations on the use of various key concepts and skills.
- Handout on black & white printmaking steps and color printmaking steps.
- Photo Print Project Assignment #5- Photo Essay.
- Photo Print Project Assignment #6- Scenic Landscape, Cityscape, or Seascape Postcard or Panorama.
- Photo Print Project Assignment #9- Special Effects Applications
- Photo Print Project Assignment #10- Photo Restoration and Retouching
- Photo Print Project Assignment #11- Optimum Photo Image File Attachments for Email
- Self-critiques of submitted photo print projects.

Assessments

- Evaluative testing for retention and understanding of key concepts.
- Photo print projects are evaluated with rubrics for communicative value, presentation, technical elements, and fulfillment of the assignment.

Month	October/Nov.- Q1, December/Jan.- Q2, March/Apr.- Q3, May/June- Q4
Topic 7	Traditional Film and Chemical-Based Photo Processing
Big Idea	
<p>Since the inception of photography, photographic images had been created with a chemical-based process. Film and paper prints had to be processed through liquid chemistry under restricted light conditions. In the last two decades, this technology, at first slowly, and later rapidly, continues to be replaced by electronic and computer-based digital technology. It is important for photography students to understand the older processes, as well as the emerging new technology.</p>	
Essential Questions	
<ul style="list-style-type: none"> • Did photography have to change from a chemical based technology to an electronic/computer based technology? Why? 	
Enduring Understandings	
<ul style="list-style-type: none"> • Changing to digital image technology gives photographers greater creative and technical powers over their expressions. 	
NJSLS	TECH.8.1.12.F.1; TECH.8.2.12.A.3
Key Concepts and Skills	
<ul style="list-style-type: none"> • Photosensitive film and paper are coated with a chemical emulsion that can record a latent image when exposed to light, ideally coming through a lens in the camera or from an enlarger in the darkroom. • Latent images are made visible when the emulsion-coated film and paper are processed through chemical solutions to produce photographic negative and positive images. • The key solutions that the exposed film and paper must be immersed in are developer, stop bath, and fixer, with water acting as a cleansing agent after processing. Other chemical solutions may be needed for specific processing results. • The temperature of the processing chemical solutions should be closely controlled, as it affects the processing time and combined, these parameters affect the quality of the photographic negative and positive image results. • Typically, processed images on film appear as negative (reversed in tonal and color value) while images on paper appear as positive (representative of the original scene in tonal and color value). • Since photographic film emulsions are much more sensitive to light, it is mandatory that the film processing be done in total darkness for optimal image quality (this can be achieved most efficiently inside light-tight processing tanks). Black & white (also called grayscale) paper emulsions can be processed under subdued special color safelight conditions allowing the darkroom technician to see the latent image darken during development. Color or panchromatic paper emulsions are, like film, very sensitive to light and therefore, must be processed in total darkness or under extremely dim special color safelight conditions. Deviations from the critical light conditions result in photographic images being “fogged” and of unsatisfactory picture quality. 	

Learning Activities

- Lecture presentation on key concepts.
- Demonstration on the use of various key concepts and skills.

Assessments

- Evaluative testing for retention and understanding of key concepts.

Month	October/Nov.- Q1, December/Jan.- Q2, March/Apr.- Q3, May/June- Q4
Topic 8	Light Physics, Color Theory, and Photographic Lighting Techniques
Big Idea	
<p>The electromagnetic spectrum provides radiation that is used in a number of photographic fields and the visible light portion of the spectrum provides the primary source of illumination needed for everyday photography. Various colors split out of the Sun’s white illumination and reflect off surfaces and these can be captured by the camera, later to be processed into photographic images.</p> <p>Colored light alteration in photography is done to primary and secondary colors using complementary color adjustments. Visible light colors and their complements can be diagrammed using a color wheel.</p> <p>Photography is able to be done most easily with natural light and artificial light. Artificial light in a photo studio can be created from electronic strobe lights among other forms. A studio lighting set-up consists of various named lights and auxiliary equipment.</p>	
Essential Questions	
<ul style="list-style-type: none"> • Could we visually communicate with photography if there was no sunlight? Explain. • How could we create photographic images if light didn’t travel in straight lines? • How does a color-blind student create corrected color images in digital photography? 	
Enduring Understandings	
<ul style="list-style-type: none"> • With artificial light, we reproduce the visible light radiation of the sun. • Artificial light allows the photographers to control where and how shadowing occurs in the photo image. 	
NJSLS	VPA.1.3.12.D; TECH.8.1.12.F.1; TECH. 8.2.12.A.2, . TECH. 8.2.12.B.4
Key Concepts and Skills	
<ul style="list-style-type: none"> • The Electromagnetic Spectrum consists of various wavelengths of radiation from the Sun. • X-ray, ultraviolet, infrared, and visible light wavelengths are used with photography. • The visible light spectrum is most popular with photography and reaches from one end of the ultraviolet to one end of the infrared wavelengths. • Visible light is colored violet to blue to cyan to green to yellow to red. • The color wheel of light includes primary colors red, green and blue, and secondary colors of cyan, magenta and yellow. • In photographic imaging, altering an image color is done with a specific color’s complementary (opposite) color. Complementary to red is cyan and vice versa; to green is magenta and vice versa; and to blue is yellow and vice versa. • Electronic flash/strobe studio lighting operates at cool temperatures, making it more comfortable for portrait models. 	

- Various lights used in the studio are the main/key light, fill light, accent/hair/kicker light, and background light. Auxiliary equipment for lighting includes umbrellas, reflectors, backdrops, and extension booms.

Learning Activities

- Lecture presentation on key concepts.
- Demonstrations on the use of various key concepts and skills.
- Photo Print Project Assignment #7- READ Poster Portrait with Flash Fill.
- Photo Print Project Assignment #8- Studio Lighting Portrait or Still Life
- Self-critiques of submitted photo print projects.

Assessments

- Evaluative testing for retention and understanding of key concepts.
- Photo print projects are evaluated with rubrics for communicative value, presentation, technical elements, and fulfillment of the assignment.

Month	October/Nov.- Q1, December/Jan.- Q2, March/Apr.- Q3, May/June- Q4
Topic 9	Careers in Photography
Big Idea	
<p>The photographic industry offers numerous occupations requiring technical, artistic and communications skills. Occupations in the fields of photography overlap many other business fields.</p>	
Essential Questions	
<ul style="list-style-type: none"> • Is photography the best career option I have? • Can I be a good visual communicator if I am not a good verbal communicator? 	
Enduring Understandings	
<ul style="list-style-type: none"> • Photography is essentially a visual communications profession. • It would be very difficult to be a photographer communicating to the masses of society if you had a significant visual impairment. 	
NJSLS	TECH.8.1.12.A.1, TECH.8.1.12.D.1, TECH.8.1.12.D.2, TECH.8.1.12.D.4, TECH.8.1.12.D.5, TECH.8.1.12.E.2, TECH.8.1.12.F.1; TECH.8.2.12.A.1, TECH.8.2.12.A.2, TECH.8.2.12.B.1, TECH.8.2.12.C.1
Key Concepts and Skills	
<ul style="list-style-type: none"> • In most instances, employers are looking for job candidates with higher education in fine arts or communications, or art school background. • Working as a photographer’s assistant in photo studios or on location helps prepare job candidates with practical experience and further skill-building in the art and technics of photography. • Working in an art agency or news organization provides valuable on-the-job experiences and training. 	
Learning Activities	
<ul style="list-style-type: none"> • Information about, and skill-building related to the numerous photography professions is intertwined in the lectures, lessons, and photo project assignments done related to the many different business areas that photography touches. • Videos related to careers in photography are shown and discussed. • Information about post high school workshops, art schools, and degree programs are made available and discussed. • Exploratory research on various fields and occupations in the photographic industry. 	
Assessments	

- Evaluative testing for retention and understanding of key concepts.
- Research report on occupations in the photographic industry with special emphasis on a particular occupation of choice and examples of photographic work done in that profession.