Digital Imaging and Design Seminar

Curriculum Area: Applied Technology and Engineering	Course Length: 1 Term
Course Titles: Digital Imaging and Design Seminar	Date last reviewed: May 21, 2015
Prerequisites: Digital Imaging and Design I and II	Board approval date: June 16, 2015

Desired Results

Course Description and Purpose:
This semester long course is designed for those students who have successfully completed Digital Imaging and Design I and II and are interested in engaging in advanced study in the areas of digital imaging (web and multimedia), photography, graphic design, printing or related fields. Through a variety of real world applications students will apply the skills and concepts learned in previous imaging courses in the creation of images for, but not limited to, the school newspaper, yearbook, web pages, displays and community groups. The class functions as a business providing design and reproduction services to the school community. Students will also be given the opportunity to explore an independent study, project based activity furthering their knowledge of specific imaging disciplines. A fee is charged for materials used in projects.

Enduring Understandings:	**Essential Questions:**
The student will understand that… ● Combining and applying artistic and reasoning skills is critical to imagine, create, realize and refine artworks in conventional and innovative ways. ● Digital tools can be used to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. ● There are a multitude of career opportunities that utilize digital imaging skills. ● Digital imaging allows for multiple processes and solutions to a problem. ● Digital imaging uses elements of art and principles of design within their compositions	1. How can the skills in image creation, manipulation, reproduction or publishing be applied in a career? 2. How can light be manipulated to add drama and meaning to a photographic image? 3. Why would a photographer change aperture and shutter speed to control light and add visual interest to an image? 4. How can story and emotion affect an image? 5. How can vector based images be used to drive a machine tool path (vinyl cutter, laser, cnc)? 6. How can marketable products be created and produced with imaging tools?

● Digital image creation and publishing is a combination of input, image processing and output ● Digital images are vector or raster based and need specific software to create each ● Frequently, problems are too complex for a single person to solve. Teams are formed and duties shared. It is important to have a diversified team to help discover solutions that someone might miss.	7. How can appropriate software modify, enhance and prepare a raster based image (photograph) for publication? 8. How can customer needs and desires drive the creation of a design that has both artistic value and marketing merit and fulfill a need? 9. How can design principles affect the readability and marketability of graphically designed projects? 10. How can a body of work clearly demonstrate mastery of image related software? 11. What are the most essential steps to prepare a digital image for publication - whether it is going to be printed or displayed on the web?

Assessment Evidence:

Performance assessments: Project based assessments will be used in all units to assess student mastery. In addition other performance assessments will include web based portfolios, gallery displays, performance tests and journals as well as customer evaluations	Other assessments: ● Formative assignments ● Quizzes ● Demonstrations

UNITS
1. Image Creation - Input 2. Image Processing 3. Graphic Design 4. Image Output 5. Careers in Visual Communication/Digital Media and the Arts

Unit 1: Image Creation - Input

1. History and context of digital imaging
2. Digital imaging and its relationship to digital photography and illustration
3. Components: Input, image processing, output
4. Communication model and process
5. Photography and image capture
6. Raster image creation - Photoshop
7. Vector image creation - Illustrator

Standards:

Wisconsin Standards for Technology and Engineering
ICT1: Students will analyze, select and use information and communication technologies.
ICT1.g: Analyze and use various technologies to produce graphic communication products.
ICT1.d: Analyze the principles of effective printed, projected and multimedia communication in a variety of formats and contexts.
ICT1.c: Analyze graphic communications in an ever increasingly technological world.
ICT1.b: Describe how communication is an ever evolving process.
ICT1.a: Analyze how communication happens, the different forms of communication and how it affects society.
MNF1: Students will be able to select and use manufacturing technologies.
MNF1.a: Identify, select and safely use tools, machines, products and systems for specific tasks
MNF1.a.1.e: Discuss health safety in the workplace.
MNF1.a.2.e: Recognize tools, machines and materials along with their applications and failures.
MNF1.a.3.e: Recognize the characteristics of length, volume, weight, area and time.
MNF1.a.4.m: Discuss health and safety procedures in the workplace that keep workers safe.
MNF1.a.9.h: Select and apply the appropriate units and scales for situations involving measurement.
MNF.1.b.2.e: Learn basic methods of verbal, written and graphical communication as it relates to manufacturing.
MNF.1.b.4.m: Comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams

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Determine the meaning of symbols, key terms, and other domain-specific words and phrases as

they are used in a specific scientific or technical context relevant to *grades 11-12 texts and topics*.
CCSS.ELA-LITERACY.RST.11-12.7
Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
CCSS.ELA-LITERACY.RST.11-12.9
Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Learning Targets Addressed:

I can…

- Plan a product containing aspects including input, image processing and output as they relate to a digital image.
- Differentiate and apply the parts of the communication process/model to a design and create an image employing them and fulfilling a customer's need.
- Justify the correct application of various input devices (cameras, scanners, etc.) to capture an image.
- Manipulate and process an image using industry standard image processing software.
- Devise and communicate a plan for solving a customer's design needs or problems.
- Assess safety hazards in the workplace.
- Critically judge a photographic composition and apply it within a graphic design.

Unit 2: Image Processing

1. Raster Based Images
2. Vector Based Images
3. Video Production

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ICT1.g: Analyze and use various technologies to produce graphic communication products.
ICT1.d: Analyze the principles of effective printed, projected and multimedia communication in a variety of formats and contexts.
MNF.1.b.4.m: Comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams

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Learning Targets Addressed:

Adobe Photoshop Tasks (Tied to Adobe Certification Exam)

I can use Adobe Bridge to as a file management tool within and across the Adobe product line.

Managing Assets Using Adobe Bridge

- Navigating between Adobe Bridge and your computer
- Working with metadata
- Organizing collections
- Outputting projects to PDF and for the web
- Automating multiple images in Bridge

I can create and modify camera raw images within Adobe Photoshop.

Using Camera Raw

- Basic single image adjustment
- Selective image corrections
- Batch processing and editing
- Understanding Process Version and workflow options
- Automating multiple images

I can navigate Photoshop and understand the application of all of its tools.

Understanding Photoshop Fundamentals

- Navigating the Photoshop workspace
- Importing and exporting presets
- Resetting sliders and options
- Using tool groups and options

I can create and isolate a selection using masks and layers within Adobe Photoshop

Understanding Selections

- Creating selections using appropriate tools
- Adding and subtracting from selections
- Quick Mask usage
- Using Refined Edge

Understanding Layers

- Creating and organizing layers
- Understanding the differences between raster and vector layers
- Understanding layer masks
- Searching for layers
- Understanding layer groups
- Understanding layer blend modes

I can adjust an image for color, tonal range, curves and levels with Adobe Photoshop.

Understanding Adjustments

- Differentiating between adjustment types
- Using TAT, clipping, and visibility
- Refining masks on adjustments

I can successfully edit an image using the tools with Adobe Photoshop to transform an image.

Editing Images

- Working with the retouching tools
- Working with Liquify
- Using the transform controls
- Using the Puppet Warp
- Using the Clone Source tool
- Creating panoramas
- Using HDR Pro
- Creating speciality images (black and white and duotone)
- Selecting color

I can apply character and paragraph styles to work in a production setting in Adobe Photoshop.

Working with Design and Print Production

- Using character and paragraph styles
- Using vector shapes
- Working with layer comps
- Creating frame based animations
- Working with layer styles

I can create a simple animation and video sequence within Adobe Photoshop

Working with Video

- Ingesting video into Photoshop
- Cutting and trimming video
- Creating transitions within clips
- Adding design elements into video
- Exporting and publishing video
- Using LUT adjustments for style

I can prepare and publish my images in correct formats

Outputting for Web, Print, and Mobile

- Differentiating between file types
- Using Save For Web
- Using the Print dialog

Adobe Illustrator Tasks (Tied to Adobe Certification Exam)

I can navigate the Illustrator workspace in order to create images.

Navigating the Workspace

- Customizing the workspace
- Using multiple artboards
- Utilizing rulers, grids, guides, and crop marks

I can create elaborate and advanced level drawing using Adobe Illustrator

Drawing

- Drawing basics
- Creating shapes
- Drawing pixel-aligned paths for web workflows
- Drawing with the Pencil tool
- Drawing with the Pen tool
- Editing paths
- Applying a gradient to a stroke
- Perspective drawing
- Tracing artwork with Live Trace
- Using Image Trace
- Working with symbols
- Working with symbolism tools and sets

I can creatively use color and color schemes with Adobe Illustrator

Working with Color

- Selecting color
- Using and creating swatches
- Adding colors from artwork to the Swatches panel
- Working with Color Groups
- Using the Kuler panel
- Adjusting color
- Working with Pantone Plus color libraries

I can create advanced images using the painting tools in Illustrator

Painting

- Painting with fills and strokes
- Working with Live Paint groups
- Creating and using brushes
- Working with transparency and blending modes
- Creating and using gradients
- Creating and using meshes
- Creating and using patterns

I can create and manipulate type for graphic design in Adobe Illustrator

Working with Type

- Creating type on a path
- Scaling and rotating type

- Working with fonts
- Formatting type
- Adjusting line and character spacing
- Formatting paragraphs
- Creating and applying character and paragraph styles

I can apply special effects to vector based images in Adobe Illustrator

Creating Special Effects

- Creating and using appearance attributes
- Working with effects
- Creating and applying drop shadows, glows, and feathering
- Creating and applying graphic styles

I can animate an image for the web using Adobe Illustrator

Working with Web Graphics

- Creating web graphics
- Utilizing slices and image maps
- Utilizing SVG
- Creating animations

I understand and can prepare images for a variety of output methods using Illustrator

Printing

- Setting up documents for printing
- Printing color separations
- Working with printer and bleed marks
- Printing gradients, meshes, and color blends
- Printing and saving transparent artwork
- Overprinting
- Trapping
- Using print presets

Adobe InDesign Tasks (aligned with Adobe Certification Exam)

I can create a properly formatted document in InDesign

Create short and long documents with both text and graphics

- Navigate the Document Window
- Create basic interactive documents
- Export high quality PDF documents appropriate for print and interactive purposes
- Troubleshoot issues related to page layout

Layout out a Document

- Creating a new document
- Navigating and viewing documents
- Constructing a flexible foundation for multi-page document
- Precisely position objects on a page
- Modify and transform objects
- Ensure the consistency of objects' formatting throughout a document or publication
- Building documents for alternate layouts and print sizes
- Creating data-driven documents

I can manage, manipulate and format text and typography within an Indesign document

Working with Text

- Create and position text in a frame and on a path

- Managing text flow
- Importing and editing text
- Applying formatting manually and automatically
- Inserting special characters
- Creating tables
- Adding long document features

I can create, manipulate and manage graphics within a digital document

Managing Graphics

- Placing and altering graphics
- Working with linked files
- Adjusting graphic formatting and display

I can manage and discern proper color settings and applications within an InDesign page document

Understanding Color and Transparency

- Creating and applying colors
- Working with gradients
- Applying transparency
- Color and ink management

I can build and manage interactive documents within InDesign

Building Interactive Documents

- Adding interactive objects and behaviors
- Adjusting interactive behaviors
- Previewing and exporting interactive documents

I can prepare and publish final printed documents

Preparing Documents for Final Output

- Preflighting documents
- Exporting PDF for print output
- Printing documents

Unit 3: Graphic Design
1. Language of graphic design 2. Color theory concepts and terminology 3. Color systems (RGB,CMYK,Pantone): applications 4. Two-dimensional imaging concepts of composition and aesthetics 5. Typography
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MNF1.a.9.h: Select and apply the appropriate units and scales for situations involving measurement.
MNF.1.b.4.m: Comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams
ENG1.a.1.e: Design is a creative process.
ENG1.a.2.e: Everyone can design solutions to a problem.
ENG1.a.3.e: Discuss the design process is a purposeful method of planning practical solutions to problems.
ENG1.a.5.m: Design is a creative planning process that leads to useful products and systems.
ENG1.a.6.m: There is no perfect design.
ENG1.a.8.m: Requirements for a design are made up of criteria and constraints.
ENG1.a.11.h: Argue design processes vary slightly. However, key elements of any design process include: defining a problem, identifying criteria, generating solutions, creating a model or prototype, testing and evaluating, refining the design and communicating processes and results.

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Learning Targets Addressed:

I can…

- Create a visual image incorporating graphics (art), photography and type.
- Create a design to fulfill a need for a customer.
- Apply a creative process (research, roughs, revise and finalize) to solve a graphic design problem.
- Analyze a designed image using the language of graphic design.

Unit 4: Image Output

1. Web and Digital
2. Print
    a. Offset
    b. Flexography
    c. Gravure
    d. Screen
    e. Digital
    f. Specialty
3. Specialty
    a. Vinyl Cutting
    b. Laser Engraving
    c. Ink Jet
    d. Xerography

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MNF.1.b.4.m: Comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams
MNF.1.b.6.h: Design and publish documents using advanced publishing software and graphic programs to defend and promote results.
ENG1.a.5.m: Design is a creative planning process that leads to useful products and systems.
ICT1.d: Analyze the principles of effective printed, projected and multimedia communication in a variety of formats and contexts.

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Learning Targets Addressed:
I can...

- Apply the digital workflow steps and prepare an image for appropriate output including web/digital or print.
- Demonstrate the differences between output in regards to both pixels and dots per inch (resolution).
- Analyze the appropriate output and reproduction method for a printed product based upon both quality and cost.
- Produce a quality digital and printed product via a multitude of methods.

Unit 5: Careers in Visual Communication/Digital Media and the Arts

1. Existing and emerging careers
2. Matching and applying your skill set to a career
3. Exploring avenues for training, mentoring/shadowing
4. Employability skills and traits

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MNF.1.b.4.m: Comprehend and engage in communication methods to convey ideas, concepts and requirements to other individuals and teams
MNF1.f.2.e: Learn that manufactured products are designed.
ENG1.a.5.m: Design is a creative planning process that leads to useful products and systems.

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Learning Targets Addressed:

I can…

- Apply the skills learned in class to a potential career.
- Research various careers in emerging career areas that relate to the imaging techniques and skills attained in class.
- Perform well in a job interview highlighting my employability skills and talent.
- Function as a productive employee demonstrating professionalism, respect, time management and responsibility.