IDAHO DRAFTING AND DESIGN PROGRAM STANDARDS

2015

CONTENT STANDARD 1.0: CAREER EXPLORATION

Performance Standard 1.1: Careers in Drafting

1.1.1 Investigate careers in drafting, training, and associated opportunities.
1.1.2 Describe the differences between drafting disciplines and job functions.
1.1.3 Explore career opportunities and list educational requirements for a given drafting field.
1.1.4 Identify safety risks and preventative measures in the office, at the construction site, and production site.

CONTENT STANDARD 2: DRAFTING FUNDAMENTALS

Performance Standard 2.1: Geometric Constructions

2.1.1 Define geometric terms and recognize various geometric shapes by name.
2.1.2 Use lines, circles, and arcs to construct regular and irregular geometric shapes.
2.1.3 Construct angles, to include acute, obtuse, and right angles.
2.1.4 Divide lines and bisect angles and arcs.
2.1.5 Construct tangent, concentric, and perpendicular geometric relationships.
2.1.6 Calculate area, perimeter, and volume of geometric shapes to include circle, square, rectangle, and triangle.

Performance Standard 2.2: Measuring and Scaling Techniques

2.2.1 Explain the concept of scaling of objects.
2.2.2 Determine appropriate engineering, architectural, and metric scales.
2.2.3 Measure object size, area, and volume utilizing appropriate industry devices.
2.2.4 Construct drawings utilizing metric and customary (i.e., SI, Imperial) measurement systems.
2.2.5 Transcribe drawings accurately using ratios and proportions.
2.2.6 Determine and apply the equivalence between fractions and decimals.
2.2.7 Convert between customary (i.e., SI, Imperial) and metric systems.

Performance Standard 2.3: Conventional Drafting Practices

2.3.1 Identify and select appropriate drafting media.
2.3.2 Produce title blocks.
2.3.3 Utilize appropriate drawing composition and layout.
2.3.4 Identify and utilize industry standard object properties (i.e., line weight, line type).
2.3.5 Produce drawings from sketches.
2.3.6 Apply appropriate annotations to drawings according to industry standards.
2.3.7 Demonstrate drawing revision control.

Performance Standard 2.4: Multi-View Drawings Using Orthographic Projection

2.4.1 Determine the principle view of an object.
2.4.2 Identify, create, and arrange multi-view drawings.
2.4.3 Identify, create, and arrange sectional views.
2.4.4 Identify, create, and arrange primary auxiliary views.

2.4.5 Identify multiple projection theories (first angle, third angle).
2.4.6 Apply appropriate units of measurement.

Performance Standard 2.5: Dimensions and Annotations

2.5.1 Differentiate appropriate dimension standards.
2.5.2 Arrange dimensions and annotations using appropriate standards.
2.5.3 Use various dimensioning styles.
2.5.4 Construct bill of materials or schedule of materials.

Performance Standard 2.6: Pictorial Drawings

2.6.1 Create oblique drawings.
2.6.2 Create isometric drawings.
2.6.3 Create perspective drawings.

Performance Standard 2.7: Hand Sketching Techniques

2.7.1 Develop design ideas using freehand sketching.
2.7.2 Create pictorial and multi-view sketches.
2.7.3 Utilize hand lettering techniques.
2.7.4 Utilize the alphabet of lines.
2.7.5 Utilize line weights, shading, and color to communicate sketch ideas.

CONTENT STANDARD 3: FUNDAMENTAL CADD SKILLS

Performance Standard 3.1: Basic Computer and IT Skills

3.1.1 Use and maintain computer hardware and input/output devices.
3.1.2 Apply basic commands of an operating system and software.
3.1.3 Apply file management techniques using various storage media.
3.1.4 Import and export data files using various formats.
3.1.5 Use industry reliable media to acquire information to complete drafting problems.

Performance Standard 3.2: Drawing Environment

3.2.1 Select appropriate existing title blocks.
3.2.2 Set drafting settings.
3.2.3 Determine and apply scaling factors, including plotting and printing.
3.2.4 Assign line weights, line types, and colors.
3.2.5 Utilize template files.
3.2.6 Utilize sheets/layouts for plotting/printing.

Performance Standard 3.3: Geometric Shapes and Objects using Cartesian Coordinate System

3.3.1 Describe and utilize the Cartesian Coordinate System to create geometric shapes and objects (x, y, z).
3.3.2 Calculate input coordinates.
3.3.3 Manipulate and utilize coordinate systems.

Performance Standard 3.4: CADD Commands

3.4.1 Utilize multiple entry methods to invoke CADD commands (i.e., hot keys, icons, and menus).

3.4.2 Utilize geometric relationships to ensure accuracy (i.e., endpoint, midpoint, and center.

3.4.3 Utilize CADD commands to create and modify objects.

3.4.4. Assign property styles to objects.

3.4.5. Access and integrate help resources to solve problems.

Performance Standard 3.5: Annotations

3.5.1 Define, create, and modify industry standard text styles.

3.5.2 Arrange text based on industry standards.

3.5.3 Create and modify dimension styles.

3.5.4 Arrange dimensions based on industry standards (may include dual dimensioning).

3.5.5 Use industry standard symbols to annotate drawings.

CONTENT STANDARD 4: 3-D CADD SKILLS AND TECHNIQUES

Performance Standard 4.1: Three-Dimensional Models

4.1.1 Interpret and define the right-hand rule for the x, y, and z-axes.

4.1.2 Develop three-dimensional models (i.e., wireframe, surface, solid, or parametric).

4.1.3 Manipulate the x-y plane in three-dimensional space.

4.1.4 Edit the shape and configuration of solid models.

4.1.5 Display objects as shaded or hidden lines removed.

4.1.6 Create working and presentation drawings from three-dimensional models.

CONTENT STANDARD 5: ARCHITECTURAL DRAFTING AND DESIGN

Performance Standard 5.1: Architectural Design

5.1.1 Identify and describe different architectural styles.

5.1.2 Identify construction terminology, materials and building codes.

5.1.3 Identify architectural annotation standards.

5.1.4 List and describe construction drawings.

5.1.5 Prepare a floor plan from an existing plan or sketch.

Performance Standard 5.2: Architectural Views and Details Related to Design Criteria

5.2.1 Apply architectural design concepts to plan views.

5.2.2 Create an exterior elevation from an existing floor plan.

5.2.3 Create interior elevations.

5.2.4 Create building sections and details.

5.2.5 Produce schedules.

5.2.6 Understand and apply green building/sustainable design principles to project design.

CONTENT STANDARD 6: MECHANICAL DRAFTING AND DESIGN

Performance Standards 6.1: Drafting Concepts Related to Basic Manufacturing Processes

6.1.1 Describe the basic engineering design process.
6.1.2 Describe standard machine processes.
6.1.3 Utilize standard welding/machining symbols per ANSI and ASME.
6.1.4 Identify common stock forms.
6.1.5 Create scaled working drawings using dimensions, tolerances, and other specifications for machine tool, fabrication, and/or welding processes.
6.1.6 Create thread and fastener representations and utilize thread designations.
6.1.7 Create assembly drawings including a bill of materials.

Performance Standards 6.2: Geometric Dimensioning and Tolerancing (GDK&T) Standards

6.2.1 Understand datums utilized for tolerancing.
6.2.2 Utilize basic dimensioning for toleranced features.
6.2.3 Utilize GD&T for assembly fits.

Performance Standard 6.3: Drafting Concepts Related to Pattern Development

6.3.1 Define developments.
6.3.2 Identify the major types of developments.
6.3.3 Construct parallel line development.

IDAHO ELECTRONIC TECHNOLOGY PROGRAM STANDARDS

2014

CONTENT STANDARD 1.0: IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES

Performance Standard 1.1: Demonstrate General Lab Safety Rules and Procedures

1.1.1 Describe general shop safety rules and procedures (i.e., safety test).
1.1.2 Describe the roles of OSHA and UL in the workplace.
1.1.3 Comply with the required use of personal protective equipment (PPE) during lab/shop activities.
1.1.4 Utilize safe procedures for handling of tools and equipment.
1.1.5 Operate lab equipment according to safety guidelines.
1.1.6 Identify and use proper lifting procedures and proper use of support equipment.
1.1.7 Utilize proper ventilation procedures for working within the lab/shop area.
1.1.8 Identify marked safety areas.
1.1.9 Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment.
1.1.10 Identify the location of the posted evacuation routes.
1.1.11 Identify appropriate clothing for lab/shop activities.

Performance Standard 1.2: Identify and Safety Utilize Tools

1.2.1 Identify tools and their appropriate usage.
1.2.2 Demonstrate the proper techniques when using tools.
1.2.3 Demonstrate safe handling and use of appropriate tools.
1.2.4 Demonstrate proper cleaning, storage, and maintenance of tools.

Performance Standard 1.3: Identify and Safety Utilize Instrumentation

1.3.1 Identify test equipment and their appropriate usage.
1.3.2 Demonstrate the proper techniques when using test equipment.
1.3.3 Demonstrate safe handling and use of appropriate test equipment.
1.3.4 Demonstrate proper cleaning, storage, and maintenance of test equipment.

CONTENT STANDARD 2.0: IDENTIFY FUNDAMENTAL ELECTRONIC THEORY AND THE HISTORY/FUTURE OF ELECTRONICS

Performance Standard 2.1: Explain the Principles of Electronic Theory

2.1.1 Summarize electron theory (i.e., matter, parts of an atom, charges).
2.1.2 Explain the characteristics of voltage, current, and resistance (i.e., unit of measure, letter/symbol).
2.1.3 Discuss how to generate electricity with magnetism, heat, light, friction, and pressure.
2.1.4 Define key terms associated with the fundamentals of the theory of electronics.

Performance Standard 2.2: Identify the History and Future Trends in Electronics

2.2.1 Research the history of electricity.
2.2.2 Research the history of electronics (i.e., vacuum tubes, transistors, integrated circuits).
2.2.3 Describe the impact of the advancement of electronics on society and the economy.
2.2.4 Investigate new and emerging electronic technologies and trends.
2.2.5 Research the different career opportunities in the electronics technology career path.

CONTENT STANDARD 3.0: IDENTIFY AND ANALYZE ELECTRICAL COMPONENTS AND QUANTITIES

Performance Standard 3.1: Identify Electronic Components

3.1.1 Identify and explain the main purposes of electronic components.
3.1.2 Classify designation letters used to represent electronic components.
3.1.3 Illustrate schematic symbols for various types of electrical and electronic components.
3.1.4 Recognize the effects of environmental conditions on electronic components.
3.1.5 Define key terms associated with electronic components.

Performance Standard 3.2: Analyze Quantities Utilized in Electronics

3.2.1 Identify and utilize the basic units of electronic measurements
3.2.2 Express numbers in scientific engineering notation (i.e., prefixes and symbols)
3.2.3 Convert from scientific notation to engineering notation
3.2.4 Identify and utilize the resistor color code
3.2.5 Utilize Ohm's law to determine current, voltage, resistance, and power
3.2.6 Define key terms associated with quantities used in electronics

CONTENT STANDARD 4.0: CONSTRUCT AND ANALYZE FUNDAMENTAL CIRCUIT CONFIGURATIONS

Performance Standard 4.1: Analyze Series Circuit Configuration

4.1.1 Identify series circuit configuration.
4.1.2 Calculate voltage drops in a series circuit.
4.1.3 Utilize Kirchhoff's Voltage Law.
4.1.4 Recognize polarity in a series circuit.
4.1.5 Calculate voltage, current, resistance, and power in a series circuit.
4.1.6 Construct, measure, and analyze simple series circuit.
4.1.7 Define key terms associated with series circuits.

Performance Standard 4.2: Analyze Parallel Circuit Configuration

4.2.1 Identify parallel circuit configuration.
4.2.2 Calculate voltage drops in a parallel circuit.
4.2.3 Utilize Kirchhoff's Current Law.
4.2.4 Recognize polarity in a parallel circuit
4.2.5 Calculate voltage, current, resistance, and power in a parallel circuit.
4.2.6 Construct, measure, and analyze simple parallel circuit.
4.2.7 Define key terms associated with parallel circuits.

Performance Standard 4.3: Analyze Series-Parallel Circuit Configuration

4.3.1 Identify series-parallel circuit configuration.
4.3.2 Calculate voltage drops in a series-parallel circuit.
4.3.3 Utilize Kirchhoff's Voltage and Current Laws where appropriate.
4.3.4 Recognize polarity in a series-parallel circuit.
4.3.5 Calculate voltage, current, resistance, and power in a series-parallel circuit.

CONTENT STANDARD 5.0: APPLY FUNDAMENTAL ANALOG ELECTRONIC PRINCIPLES

Performance Standard 5.1: Analyze Direct Current (DC) Circuits

5.1.1 Interpret electronic schematic diagrams.
5.1.2 Construct and test DC circuits.
5.1.3 Discuss basic electrical and magnetic properties and their relation to various materials.
5.1.4 Demonstrate the proper usage of analog and digital meters.
5.1.5 Research DC applications (i.e., motors, steppers).
5.1.6 Define key terms associated with DC circuits.

Performance Standard 5.2: Analyze Alternating (AC) Circuits

5.2.1 Interpret electronic schematic diagrams.
5.2.2 Construct and test AC circuits.
5.2.3 Practice the proper usage of test equipment (i.e., analog and digital meters, oscilloscopes, AC voltage sources).
5.2.4 Identify AC wave form characteristics: effective voltage (RMS), average voltage, negative alternation, positive alternation, wavelength, amplitude, and period.
5.2.5 Calculate peak, peak-to-peak, RMS, and average voltage values for an AC wave form.
5.2.6 Explain cycle, hertz, and phase.
5.2.7 Describe the requirement for inductance in AC electrical circuits (i.e., self and mutual inductance).
5.2.8 Compare and contrast reactance, resistance, and impedance.
5.2.9 Explain phase relationships for series and parallel RL, RC, and RCL circuits.
5.2.10 Research high and low pass filter circuits.
5.2.11 Define key terms associated with AC circuits.

CONTENT STANDARD 6.0: APPLY FUNDAMENTAL DIGITAL ELECTRONIC PRINCIPLES

Performance Standard 6.1: Analyze Digital Design and Circuitry

6.1.1 Identify and convert numbers between numbering systems (i.e., decimal, binary, hexadecimal, BCD).
6.1.2 Compare and contrast between 1 (high) and 0 (low or ground).
6.1.3 Perform numerical calculations in numbering systems.
6.1.4 Identify and describe basic logic operations (i.e., AND, OR, buffer, inverter, NAND).
6.1.5 Explain Boolean Algebra and its use in digital circuitry.
6.1.6 Research Karnaugh Maps.
6.1.7 Interpret data sheet information.
6.1.8 Evaluate logic circuit truth tables.
6.1.9 Analyze clock and timing circuit operations.
6.1.10 Analyze combinational logic circuits for a given application (i.e., relay logic).
6.1.11 Assess the operation of analog-to-digital and digital-to-analog convertors.
6.1.12 Define key terms associated with digital electronics.

CONTENT STANDARD 7.0: APPLY MICROPROCESSOR AND MICROCONTROLLER PRINCIPLES

Performance Standard 7.1: Analyze Control Device

7.1.1 Describe basic principles of microprocessors.
7.1.2 Describe the process of executing instructions in a microprocessor.
7.1.3 Draw a flowchart for a typical program or process.
7.1.4 Describe the procedure for instruction coding and program debugging.
7.1.5 Describe the fundamental principles for microprocessor interfacing.
7.1.6 Demonstrate basic wiring procedures for microprocessors.
7.1.7 Write, deploy and test an original microcontroller program.
7.1.8 Research current industry standards for application of programming.
7.1.9 Define key terms associated with electronic control devices.

CONTENT STANDARD 8.0: APPLY FUNDAMENTAL FABRICATION AND SOLDERING TECHNIQUES

Performance Standard 8.1: Analyze Control Device

8.1.1 Investigate current industry standards for fabrication techniques.
8.1.2 Demonstrate proper setup of fabrication area, equipment, and materials.
8.1.3 Construct circuits/projects in the proper sequence.
8.1.4 Properly layout circuits/projects from schematic diagrams/prints.
8.1.5 Check work for accuracy.
8.1.6 Analyze and summarize how manufacturing businesses improve performance.

Performance Standard 8.2: Analyze Standard Soldering Techniques

8.2.1 Research current industry standards for soldering.
8.2.2 Explain solder safety (i.e., burns, fires, lead poisoning, fumes, damages).
8.2.3 Identify types of solder and soldering irons.
8.2.4 Demonstrate the proper and safe method for soldering, de-soldering, and cleaning.
8.2.5 Demonstrate the ability to solder components to a printed circuit board.
8.2.6 Demonstrate the ability to de-solder components from a printed circuit board.
8.2.7 Classify flux types and usages.
8.2.8 Demonstrate proper usage of heat sinks.
8.2.9 Recognize cold solder joints and explain the causes.
8.2.10 Produce soldered joints to specifications.
8.2.11 Compare and contrast good and bad mechanical and electrical solder connections.
8.2.12 Demonstrate proper care of solder and de-solder equipment and aids.
8.2.13 Utilize various types of de-soldering equipment and their usages (i.e., de-soldering braid/wick, de-soldering pumps).
8.2.14 Define key terms associated with soldering.

CONTENT STANDARD 9.0: APPLY FUNDAMENTAL TROUBLESHOOTING AND MAINTENANCE TECHNIQUES

Performance Standard 9.1: Apply Troubleshooting Techniques

9.1.1 Explain troubleshooting procedures.

9.1.2 Create and utilize a safety checklist.
9.1.3 Utilize all safety procedures necessary while troubleshooting (e.g., lock-out tag-out, etc.)
9.1.4 Select and utilize appropriate tools for electronics troubleshooting.
9.1.5 Research various sources of repair/maintenance/troubleshooting documentation (e.g., print media, electronic, tech support, local expert).
9.1.6 Utilize manufacturer s' documentation for troubleshooting.
9.1.7 Interpret electronic schematic diagrams.
9.1.8 Measure electrical characteristics of voltage, current, and resistance in basic electronic circuits using multi-meters, oscilloscopes, logic probes, etc.
9.1.9 Troubleshoot and repair common problems (i.e., faulty components, open circuits, short circuits, environmental conditions).
9.1.10 Define key terms associated with troubleshooting techniques.

Performance Standard 9.2: Demonstrate Maintenance and Repair Techniques

9.2.1 Explain the difference between maintenance and repair.
9.2.2 Identify the common causes of system and equipment failures.
9.2.3 Use electrostatic discharge (ESD) control devices and techniques when handling ESD-sensitive equipment and components.
9.2.4 Utilize manufacturers' documentation to identify system problem(s).
9.2.5 Isolate common faults in wiring and equipment.
9.2.6 Identify common preventive maintenance measures.
9.2.7 Interpret preventive maintenance and inspection schedules.
9.2.8 Develop a routine maintenance plan.
9.2.9 Define key terms associated with maintenance and repair techniques.

IDAHO GRAPHIC DESIGN PROGRAM STANDARDS | 2015

CONTENT STANDARD 1.0: THE GRAPHIC DESIGN INDUSTRY

Performance Standard 1.1: History of the Graphic Design Field

1.1.1 Research the history of technologies that advanced the graphic design industry.

1.1.2 Describe past and present styles, and how they will affect future styles in the graphic design industry.

1.1.3 Identify art movements of the past and current societal trends, and describe how they impact graphic design.

1.1.4 Describe the importance of graphic design's influence on society.

Performance Standard 1.2: Industry Terminology

1.2.1 Formulate written and verbal communications using industry standard terms.

1.2.2 Prepare and deliver a visual presentation of a product utilizing appropriate industry terminology.

Performance Standard 1.3: Career Exploration

1.3.1 Investigate graphic design careers, training, and associated opportunities.

1.3.2 Participate in a career-related experience that could include internships, job shadowing, work site visits.

1.3.3 Participate in a career-related client service project.

CONTENT STANDARD 2.0: ELEMENTS AND PRINCIPLES OF DESIGN AND VISUAL COMMUNICATION

Performance Standard 2.1: Elements of Design

2.1.1 Identify the applications of color, line, shape, texture, size, and value in samples of graphic work.

2.1.2 Analyze the use of color, line, shape, texture, size, and value in samples of graphic work.

2.1.3 Incorporate color, line, shape, texture, size, and value in student-generated graphic work.

2.1.4 Understand the concepts of color theory.

2.1.5 Demonstrate the elements of design through manual sketching.

2.1.6 Demonstrate the elements of design through digital sketching.

Performance Standard 2.2: Principles of Design

2.2.1 Analyze the principles of design (i.e. balance, contrast, alignment, rhythm, repetition, proximity, movement, harmony, emphasis, unity, etc.) in samples of graphic works.

2.2.2 Incorporate principles of design (i.e. balance, contrast, alignment, rhythm, repetition, proximity, movement, harmony, emphasis, unity, etc.) in student-generated graphic works.

2.2.3 Demonstrate the principles of design through various design techniques.

Performance Standard 2.3: Principles of Typography

2.3.1 Identify the anatomical components and qualities of type (i.e., x-height, ascenders, descenders, counters, etc.)

2.3.2 Apply and adjust formatting to type.

2.3.3 Construct graphic works utilizing and manipulating type.

2.3.4 Demonstrate knowledge of the history of typography.

Performance Standard 2.4: Principles and Elements of Design to Layout

2.4.1 Apply effective use of negative space, composition, message structure, graphics, etc., to graphic works.
2.4.2 Create graphic works utilizing grids.
2.4.3 Create graphic works utilizing templates.
2.4.4 Utilize rule of thirds, simplicity, and/or complexity, etc. in layout.
2.4.5 Demonstrate layout skills for print collaterals (i.e., magazines, newspapers, packaging, yearbook, etc.).
2.4.6 Demonstrate layout skills for current digital media (i.e. mobile devices, tablets).
2.4.7 Explain the importance of consistency of design.
2.4.8 Explain the importance of usability.
2.4.9 Apply measurement tools and ratio analysis to image positioning in graphic works.
2.4.10 Solve aspect ratio proportion measurement in video and animation development.
2.4.11 Describe visual hierarchy and how it is used to control the viewer's eyes through a document/webpage.
2.4.12 Explain the methods used to control visual hierarchy.

CONTENT STANDARD 3: PRODUCTION USING INDUSTRY STANDARD SOFTWARE

Performance Standard 3.1: Concept Development

3.1.1 Generate project ideas through the use of brainstorming, thumbnails, roughs, mock-ups, wireframes, etc.
3.1.2 Create a storyboard for a project.
3.1.3 Explain the importance of developing a message for a specific audience.
3.1.4 Synthesize information collected from communications with various stakeholders.

Performance Standard 3.2: Image Creation and Manipulation

3.2.1 Analyze differences and appropriate applications of vector-based and bitmap images.
3.2.2 Use a variety of devices and media to import/download photos, images, and other digital media content.
3.2.3 Incorporate the use of image manipulation and illustration software into final products.
3.2.4 Apply nondestructive image editing techniques such as layering and masking.
3.2.5 Practice using different selection tools and techniques to manipulate images.
3.2.6 Practice image composition, cropping, and the use of vector paths and raster channels in saving and creating complex masks.
3.2.7 Practice composition and cropping.
3.2.8 Analyze differences and appropriate applications of vector-based and bitmap images.
3.2.9 Use a variety of devices and media to import/download photos, images, and other digital media content.

Performance Standard 3.3: Media Outputs

3.3.1 Use appropriate resolution, compression, and file formats for various media outputs including web, video, audio, and print.
3.3.2 Incorporate appropriate current industry standard color modes in graphic works (e.g., RGB, HEX, LAB, CMYK and Pantone), and explain how they relate to HSB.
3.3.3 Understand the difference between gray scale, spot color, and process colors.

Performance Standard 3.4: Graphic Design Workflow

3.4.1 Develop a workflow for a project.
3.4.2 Describe project management.
3.4.3 Create projects that address the message and conceptual ideas for a specific audience.

Performance Standard 3.5: Design and Production Process

3.5.1 Demonstrate the use of the graphic design process (define the project, develop budget and schedule/deadline, presentation and critique, revisions, final presentation, client approval, pre-press, production and final product delivery).
3.5.2 Explain the design process in different media formats.
3.5.3 Apply the design process to generate different media formats.

Performance Standard 3.6: Branding and Corporate Identity

3.6.1 Analyze branding and corporate identity, its purpose and constituents.
3.6.2 Create a visual that appropriately represents the brand's identity in multiple media formats.

CONTENT STANDARD 4: ETHICAL AND LEGAL ISSUES RELATED TO GRAPHIC DESIGN

Performance Standard 4.1: Copyright and Intellectual Property Law

4.1.1 Research laws governing copyright, intellectual property (including font usage, photography, illustration, audio and video rights), and software licensing.
4.1.2 Research laws governing brand issues, trademark, and other proprietary rights.
4.1.3 Discuss consequences of violating copyright, privacy, and data security laws.
4.1.4 Define and debate fair use including authorships, rights of use for work and likeness, and credit lines.
4.1.5 Model fair use in production of visual communication products.
4.1.6 Understand creative commons, the concept of usage rights versus ownership rights, and the importance of using a release form.

CONTENT STANDARD 5: PORTFOLIO

Performance Standard 5.1: Portfolio Development

5.1.1 Research and compare the various types of portfolios.
5.1.2 Develop portfolios that include various types of media.
5.1.3 Recognize that portfolios are dynamic and require maintenance.

Performance Standard 5.2: Evaluating Portfolios

5.2.1 Conduct peer- and self-evaluations.
5.2.2 Understand the elements of the critique process, including a respect for peer work and the ability to give and receive dispassionate and constructive criticism.

CONTENT STANDARD 6: MATHEMATICAL SKILLS

Performance Standards 6.1: Mathematical Skills for Visual Communications

6.1.1 Apply addition, subtraction, multiplication and division of whole numbers, fractions, and decimals.
6.1.2 Apply fraction to decimal and decimal to fraction conversion problems.
6.1.3 Apply decimal to percent and percent to decimal conversion problems.

6.1.4 Apply basic ratio and proportion problems.
6.1.5 Apply basic linear measurement problems.
6.1.6 Apply basic inches to picas and picas to inch conversion problems.
6.1.7 Apply inches to points and points to inch conversion problems.
6.1.8 Apply points to picas and picas to points conversion problems.

CONTENT STANDARD 7: COMMUNICATION SKILLS

Performance Standard 7.1: Communication Skills for Visual Communications

7.1.1 Write logical and understandable statements or phrases to fill out documents used in business and industry (i.e. forms, invoices, proposals, etc.).
7.1.2 Read and follow written and oral instructions.
7.1.3 Articulate and write concise and accurate instructions/step by step process.
7.1.4 Demonstrate appropriate communication skills (i.e. telephone, e-mail, texting, social media, etc.).

CONTENT STANDARD 8: EDITING AND PROOFREADING SKILLS

Performance Standard 8.1: Proofreading Skills

8.1.1 Demonstrate ability to proofread and edit various forms of copy for different audiences.
8.1.2 Demonstrate knowledge of proofreaders' marks.
8.1.3 Demonstrate knowledge of electronic forms of editing and correcting.

CONTENT STANDARD 9: DIGITAL MEDIA

Performance Standard 9.1: Graphic Design in Digital Media

9.1.1 Understand the relationship of graphic design in context of web design.
9.1.2 Understand the relationship of graphic design in context of video production.
9.1.3 Understand the relationship of graphic design in context of audio production.
9.1.4 Understand the relationship of graphic design in context of animation.

CONTENT STANDARD 10: APPLIED ART

Performance Standard 10.1: Traditional and Digital Design

10.1.1. Demonstrate creation of simple, tone, or color illustration with traditional and digital tools.
10.1.2. Create 2D or 3D works of design in analog and digital formats.

IDAHO NETWORKING SUPPORT PROGRAM STANDARDS

2015

CONTENT STANDARD 1.0: END POINT TECHNOLOGIES

Performance Standard 1.1: PC Hardware Configuration and Installation

1.1.1 Identify and understand motherboards and related components.
1.1.2 Identify and understand RAM types and features.
1.1.3 Identify and understand expansion card uses and differences.
1.1.4 Understand differences and use of storage devices and media types.
1.1.5 Identify and understand CPU types and features.
1.1.6 Identify power supply requirements and select appropriate unit for a system.
1.1.7 Demonstrate custom configurations per customer needs.
1.1.8 Identify and understand the use of connector types and associated cables.
1.1.9 Demonstrate the installation and configuration of peripheral devices.
1.1.10 Identify when a field replacement unit is needed.

Performance Standard 1.2: Fundamental Networking Technologies

1.2.1 Identify network cables and connectors and their characteristics.
1.2.2 Explain TCP/IP suite characteristics and properties.
1.2.3 Identify and understand the use of common TCP / UDP ports, protocols, and their characteristics.
1.2.4 Understand wireless networking standards and encryption types.
1.2.5 Demonstrate installation, configuration, and deployment of a home office network.
1.2.6 Understand and explain different Internet connection types and features.
1.2.7 Understand different network devices, their functions, and features.
1.2.8 Demonstrate the appropriate use of field networking tools.
1.2.9 Identify appropriate hardware and software tools to troubleshoot connectivity issues.

Performance Standard 1.3: Laptops, Mobile Devices, and Related Hardware

1.3.1 Demonstrate the installation and configuration of related peripherals.
1.3.2 Understand and recognize different features of laptops and mobile devices.
1.3.3 Demonstrate custom configurations per customer needs.

Performance Standard 1.4: Printer and Imaging Hardware

1.4.1 Identify and explain the different types and use of printers.
1.4.2 Understand and explain the different imaging processes.
1.4.3 Identify proper basic printer maintenance.

Performance Standard 1.5: Operating Systems

1.5.1 Understand the features and requirements of various operating systems.
1.5.2 Demonstrate how to install, upgrade, and configure an operating system.
1.5.3 Understand and demonstrate the use of command line tools.
1.5.4 Understand and demonstrate operating system tools and utilities.
1.5.5 Understand networking and configuration of operating systems.
1.5.6 Understand and explain the differences in basic OS security settings.

1.5.7 Understand the basics of virtualization.

Performance Standard 1.6: Basic Workstation Security

1.6.1 Understand the application and usage of common prevention methods.
1.6.2 Understand the differences in common security threats.
1.6.3 Demonstrate the implementation of best practices to secure a workstation.
1.6.4 Understand appropriate data destruction and disposal methods.
1.6.5 Understand and demonstrate basic wired and wireless network security.

CONTENT STANDARD 2.0: NETWORKING TECHNOLOGIES

Performance Standard 2.1: Basic Networking Concepts

2.1.1 Compare the layers of the OSI and TCP/IP models.
2.1.2 Classify how applications, devices, and protocols relate to the OSI model layers.
2.1.3 Explain the purpose and properties of IP addressing.
2.1.4 Explain the purpose and properties of routing and switching.
2.1.5 Identify common TCP and UDP well-known ports.
2.1.6 Explain the function of common networking protocols.
2.1.7 Summarize DNS concepts and its components.
2.1.8 Identify virtual network components.

Performance Standard 2.2: Installation, Configuration and Troubleshooting

2.2.1 Configure network devices using basic CLI and/or GUI as appropriate.
2.2.2 Explain the purpose and properties of DHCP.
2.2.3 Troubleshoot common router and switch problems.
2.2.4 Design and implement a basic network.
2.2.5 Demonstrate appropriate use of hardware tools to troubleshoot connectivity issues.
2.2.6 Demonstrate appropriate use of software tools to troubleshoot connectivity issues.

Performance Standard 2.3: Network Media and Topologies Installation and Configuration

2.3.1 Categorize standard media types and associated properties.
2.3.2 Categorize standard connector types based on network media.
2.3.3 Categorize WAN technology types and properties.
2.3.4 Troubleshoot common physical connectivity problems.
2.3.5 Compare and contrast different network physical and logical topologies.
2.3.6 Identify components of wiring distribution.

Performance Standard 2.4: Network and Change Management

2.4.1 Identify and document the purpose and features of network devices.
2.4.2 Demonstrate best practices of network and configuration management.

Performance Standards 2.5: Basic Network Security

2.5.1 Explain the methods of network access security.

2.5.2 Explain methods of user authentication.
2.5.3 Explain common threats, vulnerabilities, and mitigation techniques.
2.5.4 Install and configure a basic firewall.
2.5.5 Categorize different types of network security appliances and methods.

Performance Standards 2.6: IP Addressing

2.6.1 Understand the importance of subnetting.
2.6.2 Demonstrate and apply prefix notation in subnetting.
2.6.3 Design, calculate, and apply subnet masks and addresses to fulfill given topology.

Performance Standards 2.7: Configuration of Network Devices Using CLI and GUI Commands

2.7.1 Configure hostname, password and interface configuration.
2.7.2 Configure static and dynamic routing.
2.7.3 Verify network device configurations using investigative commands.

CONTENT STANDARD 3.0: CUSTOMER SERVICE

Performance Standard 3.1: Customer Service Communication Skills

3.1.1 Listen actively and ask relevant questions to understand customer needs.
3.1.2 Communicate effectively with non-technical customers.
3.1.3 Deal professionally with frustrated customers.

CONTENT STANDARD 1.0: LAB ORGANIZATION AND SAFETY PROCEDURES

Performance Standard 1.1: General Lab Safety Rules and Procedures

1.1.1 Describe general shop safety rules and procedures.
1.1.2 Demonstrate knowledge of OSHA and its role in workplace safety.
1.1.3 Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities (i.e., personal protection equipment – PPE).
1.1.4 Operate lab equipment according to safety guidelines.
1.1.5 Identify and use proper lifting procedures and proper use of support equipment.
1.1.6 Utilize proper ventilation procedures for working within the lab/shop area.
1.1.7 Identify marked safety areas and safety signage.
1.1.8 Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment.
1.1.9 Identify the location and use of eye wash stations.
1.1.10 Identify the location of the posted evacuation routes.
1.1.11 Identify and wear appropriate clothing for lab/shop activities.
1.1.12 Secure hair and jewelry for lab/shop activities.
1.1.13 Understand knowledge of the safety aspects of low and high voltage circuits.
1.1.14 Locate and interpret safety data sheets (SDS).
1.1.15 Perform housekeeping duties.
1.1.16 Follow verbal instructions to complete work assignments.
1.1.17 Follow written instructions to complete work assignments.

Performance Standard 1.2: Hand Tools

1.2.1 Identify hand tools and their appropriate usage.
1.2.2 Identify standards and metric designation.
1.2.3 Demonstrate the proper techniques when using hand tools.
1.2.4 Demonstrate safe handling and use of appropriate tools.
1.2.5 Identify proper cleaning, storage and maintenance of tools.

Performance Standard 1.3: Power Tools and Equipment

1.3.1 Identify power tools and their appropriate usage.
1.3.2 Identify equipment and their appropriate usage.
1.3.3 Demonstrate the proper techniques when using power tools and equipment.
1.3.4 Demonstrate safe handling and use of appropriate power tools and equipment.
1.3.5 Identify proper cleaning, storage and maintenance of power tools and equipment.

CONTENT STANDARD 2.0: IMPACT OF ENGINEERING

Performance Standard 2.1: Engineering History

2.1.1 Define engineering.
2.1.2 Identify engineering achievements throughout history.
2.1.3 Research how historical period and regional style have influenced engineering design.
2.1.4 Investigate the evolution of a product.

Performance Standard 2.2: Engineering Careers

2.2.1 Investigate engineering careers, training, and associated opportunities.

2.2.2 Describe the difference between engineering disciplines and job functions.

2.2.3 Explore career opportunities and list the educational requirements for a given engineering field.

2.2.4 Describe the importance of engineering teams.

2.2.5 Differentiate the careers associated with associates degrees, bachelor degrees, and master plus degrees.

Performance Standard 2.3: Ethics in Engineering

2.3.1 Knowledge of current professional engineering codes of ethics.

2.3.2 Knowledge of ethical engineering issues.

2.3.3 Apply and explain how ethical and technical issues contribute to an engineering disaster.

2.3.4 Describe how ethics influence the engineering process.

CONTENT STANDARD 3.0: ENGINEERING DESIGN PROCESS

Performance Standard 3.1: Design Process

3.1.1 Identify and understand the common elements of a design process, including define the problem, generate concepts, develop a solution, develop a design proposal, construct and test a prototype, refine the design, evaluate a solution and communicate the processes and results.

3.1.2 Apply the steps of the design process to solve a design problem.

3.1.3 Describe how social, environmental, and financial constraints influence the design process.

3.1.4 Diagram the lifecycle of a product.

CONTENT STANDARD 4.0: ENGINEERING DOCUMENTATION

Performance Standard 4.1: Freehand Technical Sketching Techniques

4.1.1 Develop design ideas using freehand sketching.

4.1.2 Identify the six primary orthographic views.

4.1.3 Create pictorial and multi-view sketches.

4.1.4 Utilize the alphabet of lines (i.e., styles and weights) and/or line conventions.

4.1.5 Legibly annotate sketches.

Performance Standard 4.2: Measuring and Scaling Techniques

4.2.1 Identify industry standard units of measure.

4.2.2 Convert between industry standard units of measure.

4.2.3 Determine appropriate engineering and metric scales.

4.2.4 Measure speed, distance, object size, area, mass, volume, and temperature.

4.2.5 Determine and apply the equivalence between fractions and decimals.

4.2.6 Demonstrate proper use of precision measuring tools.

Performance Standard 4.3: Engineering Documentation Procedures

4.3.1 Demonstrate record keeping procedures and communication in engineering.
4.3.2 Identify the importance of proprietary documentation in engineering.
4.3.3 Understand the copyright and patent process.
4.3.4 Illustrate project management timelines.
4.3.5 Create a written technical report.

Performance Standard 4.4: Technical Drawings

4.4.1 Interpret basic elements of a technical drawing (i.e., title block information, dimensions, and line types).
4.4.2 Produce drawings from sketches.
4.4.3 Identify industry standard symbols.
4.4.4 Describe and construct various types of drawings (i.e., part, assembly, pictorial, orthographic, isometric, and schematic) using proper symbols.
4.4.5 Construct drawings utilizing metric and customary (i.e., SAE and Imperial) measurement systems.
4.4.6 Arrange dimensions and annotations using appropriate standards (i.e., ANSI and ISO).
4.4.7 Construct bill of materials or schedule.

Performance Standard 4.5: Modeling Techniques

4.5.1 Identify the areas of modeling (i.e., physical, conceptual, and mathematical).
4.5.2 Create a scale model or working prototype.
4.5.3 Evaluate a scale model or a working prototype.

CONTENT STANDARD 5.0: MATERIAL PROPERTIES

Performance Standards 5.1: Material Properties and Science

5.1.1 Identify the major material families used in manufacturing.
5.1.2 Differentiate between the various types of material properties and their applications.
5.1.3 Discuss the impact of material usage on the environment.
5.1.4 Explain how cost in production is affected by the availability, quality, and quantity of resources.
5.1.5 Differentiate among raw material standard stock and finished products.

Performance Standards 5.2: Materials Strength

5.2.1 Describe the various forms of stress (i.e., compression, tension, torque, and shear).
5.2.2 Recognize and describe a stress strain curve.
5.2.3 Create free body diagrams of objects, identifying all forces acting on the object.
5.2.4 Differentiate between scalar and vector quantities.
5.2.5 Understand magnitude, direction, and sense of a vector.
5.2.6 Understand moment and torque forces.

CONTENT STANDARD 6.0: FUNDAMENTAL POWER SYSTEMS AND ENERGY PRINCIPLES

Performance Standard 6.1: Power Systems and Energy Forms

6.1.1 Define terms used in power systems (e.g., power, work, horsepower, watts, etc.).

6.1.2 Identify the basic power systems.
6.1.3 List the basic elements of power systems.
6.1.4 Summarize the advantages and disadvantages of various forms of power.
6.1.5 Calculate the efficiency of power systems and conversion devices.
6.1.6 Define energy.
6.1.7 Define potential energy and kinetic energy.
6.1.8 Identify forms of potential energy and kinetic energy.
6.1.9 Categorize types of energy into major forms such as, thermal, radiant, nuclear, chemical, electrical, mechanical, and fluid.
6.1.10 Identify units used to measure energy.
6.1.11 Analyze and apply data and measurements to solve problems and interpret documents.
6.1.12 Calculate unit conversions between common energy measurements.
6.1.13 Demonstrate an energy conversion device.

Performance Standard 6.2: Basic Mechanical Systems

6.2.1 Distinguish between the six simple machines, their attributes and components.
6.2.2 Measure forces and distances related to mechanisms.
6.2.3 Determine efficiency in a mechanical system.
6.2.4 Calculate mechanical advantage and drive ratios of mechanisms.
6.2.5 Calculate work, power, torque and/or moments.
6.2.6 Design, construct, and test various basic mechanical systems.

Performance Standard 6.3: Energy Sources and Applications

6.3.1 Identify and categorize energy sources as nonrenewable, renewable, or inexhaustible.
6.3.2 Define the possible types of power conversion.
6.3.3 Measure circuit values using a multimeter.
6.3.4 Calculate power in a system that converts energy from electrical to mechanical.
6.3.5 Determine efficiency of a system that converts an electrical input to a mechanical output.
6.3.6 Compute values of current, resistance, and voltage using Ohm's law.
6.3.7 Solve series and parallel circuits using basic laws of electricity including Kirchhoff's laws.
6.3.8 Test and apply the relationship between voltage, current, and resistance relating to a photovoltaic cell and a hydrogen fuel cell.

Performance Standard 6.4: Machine Control Systems

6.4.1 Create detailed operational flowcharts.
6.4.2 Create system control programs (i.e., sequential, logic)
6.4.3 Select appropriate input and output devices based on system specifications and constraints.
6.4.4 Differentiate between the characteristics of digital and analog devices.
6.4.5 Compare and contrast open and closed loop systems.
6.4.6 Design and create a control system based on specifications and constraints.

Performance Standard 6.5: Basic Fluid Systems

6.5.1 Define fluid systems (e.g., hydraulic, pneumatic, vacuum, etc.).

6.5.2 Identify and define the components of fluid systems.
6.5.3 Compare and contrast hydraulic and pneumatic systems.
6.5.4 Identify the advantages and disadvantages of using fluid power systems.
6.5.5 Explain the difference between gauge pressure and absolute pressure.
6.5.6 Discuss the safety concerns of working with liquids and gases under pressure.
6.5.7 Calculate mechanical advantage using Pascal's law.
6.5.8 Calculate values in a pneumatic system using the ideal gas laws.

CONTENT STANDARD 7.0: STATISTICS AND KINEMATIC PRINCIPLES

Performance Standard 7.1: Statistics

7.1.1 Define statistical terminology.
7.1.2 Create a histogram to illustrate frequency distribution.
7.1.3 Calculate the central tendency of a data array to include mean, median, and mode.
7.1.4 Calculate data variation to include range, standard deviation, and variance.

Performance Standard 7.2: Kinematic Principles

7.2.1 Define kinematic terminology.
7.2.2 Calculate distance, displacement, speed, velocity, and acceleration based on specific data.
7.2.3 Calculate acceleration due to gravity based on data from a free-fall device.

IDAHO PROGRAMMING & SOFTWARE DEVELOPMENT PROGRAM STANDARDS

2014

CONTENT STANDARD 1.0: UNDERSTAND PROGRAMMING PRINCIPLES

Performance Standard 1.1: Demonstrate Critical Thinking and Problem-Solving Skills as they Apply to Programming

1.1.1 Apply basic programming principles.
1.1.2 Describe and differentiate procedural and object-oriented programming.
1.1.3 Apply the features of object-oriented programming languages.
1.1.4 Write a program that produces output.
1.1.5 Select identifiers to use within programs.
1.1.6 Improve programs by adding comments.
1.1.7 Write and run a program.

CONTENT STANDARD 2.0: PROBLEM SOLVING THROUGH PROGRAMMING

Performance Standard 2.1: Demonstrate Ability to Use Variables, Data Types, and String Manipulation to Solve Computer Problems Programmatically

2.1.1 Demonstrate the process of declaring variables.
2.1.2 Display variable values.
2.1.3 Apply integral data types.
2.1.4 Apply floating-point data types.
2.1.5 Apply arithmetic operators.
2.1.6 Apply Boolean data type.
2.1.7 Apply numeric type conversion.
2.1.8 Apply char data type.
2.1.9 Apply string data type.
2.1.10 Define named constants and enumerations.

CONTENT STANDARD 3.0: USE LOGIC IN PROGRAMMING

Performance Standard 3.1: Demonstrate Effective Use of Selection Structures to Add Logic to Programs

3.1.1 Demonstrate logic-planning tools and decision-making.
3.1.2 Make decision using the “if” statement.
3.1.3 Make decisions using the if-else statement.
3.1.4 Apply compound expressions in if statements.
3.1.5 Make decisions using the switch statement.
3.1.6 Apply the conditional operator.
3.1.7 Apply the NOT operator.
3.1.8. Describe how to avoid common errors when making decisions, and apply problem-solving skills in context.

CONTENT STANDARD 4: PROGRAMMING AND VALIDATION

Performance Standard: 4.1: Demonstrate Ability to Test, Debug and Validate Programming Applications

4.1.1 Locate a logic error by stepping through the code.
4.1.2 Locate logic errors using breakpoints.
4.1.3 Fix syntax and logic errors.
4.1.4 Select appropriate test data for an application.

CONTENT STANDARD 5.0: UNDERSTAND REPETITION IN PROGRAMMING

Performance Standard 5.1: Differentiate Between the Various Types of Repetition

5.1.1 Apply the loop structure.
5.1.2 Create loops using the while statement.
5.1.3 Create loops using the for statement.
5.1.4 Create loops using the do statement.
5.1.5 Apply nested loops.
5.1.6 Apply accumulators.
5.1.7 Understand and describe how to improve loop performance

CONTENT STANDARD 6.0: DEMONSTRATE PROGRAMMING FUNCTIONALITY

Performance Standard 6.1: Use Methods to Increase Functionality and to Modularize Programs

6.1.1 Describe methods and implementation hiding.
6.1.2 Write methods with no parameters and no return value.
6.1.3 Write methods that require a single argument.
6.1.4 Write methods that require multiple arguments.
6.1.5 Write a method that returns a value.
6.1.6 Pass an array to a method.
6.1.7 Overload methods.
6.1.8 Demonstrate how to avoid methods.
6.1.9 Apply optional parameters.

CONTENT STANDARD 7.0: UNDERSTAND ARRAYS AND STRUCTURE CONCEPTS

Performance Standard 7.1: Demonstrate Understanding of Arrays and Structure and Apply Concepts In Program Development

7.1.1 Declare an array and assign values to array elements.
7.1.2 Access array elements.
7.1.3 Search an array using a loop.
7.1.4 Apply multidimensional arrays.

CONTENT STANDARD 8.0: UNDERSTAND CLASSES IN PROGRAMMING

Performance Standard 8.1: Students will demonstrate understanding of Object-Oriented Programming Concepts

8.1.1 Describe and apply class concepts.
8.1.2 Create classes from which objects can be instantiated.
8.1.3 Create objects.
8.1.4 Create properties, including auto-implemented properties.
8.1.5 Use public fields and private methods.
8.1.6 Define the "this" reference.
8.1.7 Write constructors.
8.1.8 Use object initializers.
8.1.9 Overload operators.
8.1.10 Declare an array of objects.
8.1.11 Use sorting methods with an array of objects.
8.1.12 Write destructors.
8.1.13 Describe and demonstrate inheritance.
8.1.14 Extend classes.
8.1.15 Override base class methods.
8.1.16 Describe how a derived class object "is an" instance of the base class.
8.1.17 Define the object class.
8.1.18 Use base class constructors.
8.1.19 Create abstract classes.
8.1.20 Create use interfaces.
8.1.21 Apply extension methods.
8.1.22 Describe the benefits of inheritance.
8.1.23 Recognize inheritance in GUI applications.

CONTENT STANDARD 9.0: UNDERSTAND PROGRAMMING AND EXCEPTIONS

Performance Standard 9.1: Demonstrate Exception-Handling in Program Development

9.1.1 Compare and demonstrate traditional and object-oriented error-handling methods.
9.1.2 Cast data types.
9.1.3 Catch multiple exceptions.
9.1.4 Apply the finally block.
9.1.5 Handle exceptions thrown from outside methods.
9.1.6 Trace exceptions through the call stack.
9.1.7 Create exception classes.
9.1.8 Re-throw exceptions.

CONTENT STANDARD 10.0: UNDERSTAND PROGRAMMING AND EVENTS

Performance Standard 10.1: Use Event Handlers in Programs

10.1.1 Define and apply event handling.
10.1.2 Define and describe delegates.
10.1.3 Declare own events and handlers.
10.1.4 Use built-in event handlers.
10.1.5 Handle control component events.
10.1.6 Handle mouse and keyboard events.
10.1.7 Manage multiple controls
10.1.8 Explain how to find more information on controls and events

CONTENT STANDARD 11.0: SYSTEMS PLANNING AND DEVELOPMENT

Performance Standards 11.1: Apply Concepts and Principles of Systems Planning and Development

11.1.1 Describe the information systems development life cycle (SDLC).
11.1.2 Discuss how to evaluate off-the-shelf software.
11.1.3 Explain reuse and its role in software development.
11.1.4 Describe the skills required to be an effective project manager.
11.1.5 List and describe the skill and activities of a project manager during project initiation, planning, execution, and closedown.
11.1.6 Describe the steps for identifying and selecting projects and initiating and planning projects.
11.1.7 Explain the need for and contents of a project scope statement.
11.1.8 Compare various methods for assessing project feasibility.

CONTENT STANDARD 12.0: SYSTEMS ANALYSIS

Performance Standards 12.1: Demonstrate Competency with Systems Analysis Tools and Concepts

12.1.1 Compare options for designing and conducting interviews to determine system requirements.
12.1.2 Develop a plan for conducting an interview to determine system requirements.
12.1.3 Explain the advantages and pitfalls of observing workers and analyzing business documents to determine system requirements.
12.1.4 Plan a joint application design session.
12.1.5 Use prototyping during requirements determination.
12.1.6 Select appropriate methods to elicit system requirements.
12.1.7 Describe how requirements determination techniques apply to development of Internet applications.
12.1.8 Demonstrate the logical modeling of processes through studying examples of data-flow diagrams, pseudo code, and flowcharts.

CONTENT STANDARD 13.0: PRINCIPLES OF DESIGN

Performance Standards 13.1: Demonstrate Knowledge Of Application Design Principles

13.1.1 Explain the process of designing interfaces and dialogues and the deliverables for their creation.
13.1.2 Apply the general guidelines for interface design, including guidelines for layout design, structuring data-entry fields, providing feedback, and system help.
13.1.3 Concisely define each of the following key database design terms: relation, primary key, functional dependency, foreign key, referential integrity, field, data type, null value, demoralization, file organization, index, and secondary key.
13.1.4 Explain the role of designing databases in the analysis and design of an information system.
13.1.5 Transform an entity-relation (E-R) diagram into an equivalent set of well-structured (normalized) relations.
13.1.6 Merge normalized relations from separate user views into a consolidated set of well-structured relations.
13.1.7 Choose storage formats for fields in database tables.
13.1.8 Translate well-structured relations into efficient database tables.
13.1.9 Explain when to use different types of file organizations to store computer files.
13.1.10 Describe the purpose indexes and the important considerations in selecting attributes to be indexed.

CONTENT STANDARD 14.0: IMPLEMENTATION AND SUPPORT

Performance Standards 14.1: Demonstrate Knowledge of Application Implementation and Identify the Need for Ongoing Application Support

14.1.1 Describe the process of coding, testing, and converting an organizational information system.
14.1.2 Outline the deliverables and outcomes of an organizational information system.
14.1.3 List the deliverables for documenting the system and for training and supporting users.
14.1.4 Compare the many modes available for organizational information system training, including self-training and electronic performance support systems.
14.1.5 Discuss the issues of providing support for end users.
14.1.6 Explain why application implementation sometimes fails.
14.1.7 Describe several factors that influence the cost of maintaining an application.

IDAHO WEB DESIGN AND DEVELOPMENT PROGRAM STANDARDS

2014

CONTENT STANDARD 1.0: UNDERSTAND WEB PAGE DEVELOPMENT

Performance Standard 1.1: Use Standards-Compliant HTML to Create Basic Web Pages

1.1.1 Describe how the Internet and the World Wide Web work.
1.1.2 Investigate roles and responsibilities behind the development of a Web site.
1.1.3 Understanding the Web design environment.
1.1.4 Create conventions for filenames and URLs.
1.1.5 Set a directory structure.
1.1.6 Identify and use tags on a Web page.
1.1.7 Document HTML code using comments.
1.1.8 Save a text document as an HTML file.
1.1.9 Specify Headings.
1.1.10 Format Web page text.
1.1.11 Insert HTML entities, superscripts, and subscripts.
1.1.12 Create a horizontal rule.
1.1.13 Create ordered and unordered lists.
1.1.14 Learn where to place anchors on a Web page.
1.1.15 Create links.
1.1.16 Create links to email.
1.1.17 Use the <img> element.
1.1.18 Use and image as a link.
1.1.19 Organize files in your web directory.
1.1.20 Understand paths and their application to links.

Performance Standard 1.2: Use Styles to Format Web Pages

1.2.1 Identify the differences between HTML and CSS.
1.2.2 Write CSS Styles.
1.2.3 Create an embedded style.
1.2.4 Understand and use the font property.
1.2.5 Control line spacing and white space.
1.2.6 Change foreground and background colors on a Web page.
1.2.7 Create and apply inline styles.
1.2.8 Use classes to style several tags.

Performance Standard 1.3: Demonstrate an Understanding of Advanced CSS Selectors and Properties

1.3.1 Identify the differences between dependent and independent classes.
1.3.2 Use external style sheets to format several Web pages.
1.3.3 Understand how to position text on a Web page.
1.3.4 Use CSS pseudo-elements.
1.3.5 Use the tag.
1.3.6 Create and apply an independent class.

1.3.7 Use the tag.
1.3.8 Investigate the box model.
1.3.9 Explore the padding, margin, and border properties.
1.3.10 Group links on a page.
1.3.11 Identify the Pseudo-class selectors.
1.3.12 Use CSS to style links.
1.3.13 Create a stylized navigation.
1.3.14 Group links on a page.

CONTENT STANDARD 2.0: UNDERSTAND WEB PAGE DESIGN AND LAYOUT

Performance Standard 2.1: Demonstrate Understanding of Color Theory as it Applies to Web Design and Development.

2.1.1 Explore Web Design Fundamentals.
2.1.2 Explore Design Theory.
2.1.3 Understand graphics file formats (vector versus raster).
2.1.4 Investigate graphics editors.
2.1.5 Understand computer color basics.
2.1.6 Control color properties with CSS.

Performance Standard 2.2: Enhance Web Pages with List, Images and Background-Images

2.2.1 Control background images with CSS.
2.2.2 Float and image or text.
2.2.3 Control image properties with CSS.
2.2.4 Understand and use the clear property.
2.2.5 Change list style type and position.
2.2.6 Format and float headings.
2.2.7 Work with background properties.

Performance Standard 2.3: Demonstrate Understanding of and Use the Box Model

2.3.1 Understand resolution as it applies to the Box Model.
2.3.2 Create boxes for layout.
2.3.3 Size and position boxes.
2.3.4 Determine how to control overflow for a box.
2.3.5 Understand padding, margins, and border properties.
2.3.6 Understand resolution as it applies to the Box Model.
2.3.7 Create boxes for layout.

Performance Standard 2.4: Demonstrate the Ability to Effectively Design and Layout Out Web Pages Using CSS

2.4.1 Designing for multiple screen resolutions.
2.4.2 Crafting the look and feel of a site.
2.4.3 Creating a unified site design.

2.4.4 Designing for the user.
2.4.5 Designing for accessibility.
2.4.6 Use the tag to create formatting sections of a document.
2.4.7 Use tag to format elements in a document.
2.4.8 Understand the positioning properties.
2.4.9 Create a print style sheet.
2.4.10 Use multiple style sheets.

CONTENT STANDARD 3.0: UNDERSTAND INTEGRATION OF WEB PAGE CONTROLS

Performance Standard 3.1: Appropriately Use Tables to Enhance their Web Pages

3.1.1 Discern the difference between data tables and layout tables.
3.1.2 Understand the importance of using CSS for layout versus tables for layouts.
3.1.3 Learn how to nest a data table within a CSS layout.
3.1.4 Create styles to change the appearance of a table.
3.1.5 Understand how to position cell contents.
3.1.6 Understand how to position a table.
3.1.7 Understand how to manipulate table cells.

Performance Standard 3.2: Demonstrate the Ability to Use Design and Layout Web Forms

3.2.1 Create an HTML form.
3.2.2 Create fields for text.
3.2.3 Create text boxes.
3.2.4 Understand how to choose appropriate form controls.
3.2.5 Create radio buttons, check boxes, and list boxes.
3.2.6 Create selection lists.
3.2.7 Talk about HTML Form validation (but don't use).

CONTENT STANDARD 4.0: UNDERSTAND WEB RELATED PLANNING AND ORGANIZATIONAL STANDARDS

Performance Standard: 4.1: Demonstrate Understanding of Website Architecture and Planning

4.1.1 The beginning stages of Web site development.
4.1.2 The importance of understanding a site's target audience and how that understanding can affect site development.
4.1.3 Methods for getting a site developed.
4.1.4 Baseline considerations for every site, including navigation, organization, graphic design, and content development.
4.1.5 Understand the Web site development process.
4.1.6 Create a site specification.
4.1.7 Identify the content goal.
4.1.8 Analyze their audience.

4.1.9 Build a Web site development team.
4.1.10 Create a site storyboard.
4.1.11 Publish their Web site.
4.1.12 Test their Web site.

Performance Standard 4.2: Demonstrate Understanding of Site Organization and Navigation Principles

4.2.1 Create usable navigation.
4.2.2 Build text-based navigation.
4.2.3 Use graphics for navigation and linking.
4.2.4 Use lists for navigation.
4.2.5 Build horizontal navigation bars.
4.2.6 Build vertical navigation bars.
4.2.7 Use background color and graphics to enhance navigation.
4.2.8 Create hover rollovers.

Performance Standard 4.3: Demonstrate understanding of Web site Accessibility Standards

4.3.1 Investigate Accessibility Standards.
4.3.2 Explore and implement Web Content Accessibility Guidelines (WCAG).
4.3.3 Explore and understand Section 508 Standards.

CONTENT STANDARD 5.0: UNDERSTAND THE RELATIONSHIP OF WEB MARKETING

Performance Standard 5.1: Use Multimedia on the Web

5.1.1 Learn the basics of multimedia and executable content.
5.1.2 Embed Social Media Widgets on a Web page.
5.1.3 Explore the various formats available for Web-based video, the factors that determine which one to use.
5.1.4 Determine the demographics of the viewing audience, what they're watching, and why.
5.1.5 Investigate how and why companies are using Web-based video, and how audiences are responding to these efforts.
5.1.6 Explore what goes into producing professional videos.

Performance Standard 5.2: Demonstrate Brand and Marketing and Traffic Analysis

5.2.1 Identify the different types of sites that make up the Web, how each differs from the other, and how marketers can take advantage of each type of site
5.2.2 Understand the importance of keeping visitors coming back to a site
5.2.3 Learn the methods that sites utilize to increase customer retention
5.2.4 Explain the issues involved in copyrighting, trademarking, and licensing
5.2.5 Identify the issues related to working in a global environment
5.2.6 Define web-related mechanisms for audience development (attracting and retaining an audience)
5.2.7 Identify how the Web is different from other marketing tools and the added value it can provide to

marketers in developing brands

5.2.8 Discover how to promote and market your Web site to help drive new and returning traffic

5.2.9 Learn how marketers can track Web sites and what information relating to a Web site they can analyze

Performance Standard 5.3: Understand the Relationship Between the Web and Social Media

5.3.1 Define social media.

5.3.2 Understand how and why social media grew to play such an important role in the Web.

5.3.3 Explore the demographic breakdown of social media users and how their use of various applications differs.

5.3.4 Investigate the various types of social networks, how social networking sites function, and how marketers use these sites to build an audience.

5.3.5 Differentiate between Blogging and Content Management Systems.

5.3.6 Examine benefits and potential pitfalls of using Blogging and Social Media.

5.3.7 Explore Wikis and how they harness the collaborative nature of a user community.

5.3.8 Add Fresh Content with RSS/XML feeds.

5.3.9 Define "Mashups" and how they give marketers a unique opportunity to present features and information pulled together from other social media tools.

5.3.10 Explore the creation of Virtual worlds, how people communicate using avatars.