

# Arts, Audio/Video Technology, and Communications (2010): Grades 11, 12

Adopted 2010

## Animation

- (1) The student applies academic knowledge and skills in animation projects. The student is expected to:**
  - (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents; and
  - (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve problems.

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- (2) The student understands professional communications strategies. The student is expected to:**
  - (A) adapt language for audience, purpose, situation, and intent;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.

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- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**

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- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for animation projects.**

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**(5) The student applies safety regulations. The student is expected to:**

- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.
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**(6) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) demonstrate leadership skills;
  - (B) demonstrate teamwork and conflict-management skills;
  - (C) conduct and participate in meetings; and
  - (D) model mentoring skills.
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**(7) The student applies ethical decision making and understands and complies with laws regarding use of technology in animation. The student is expected to:**

- (A) exhibit ethical conduct related to interacting with others such as client confidentiality, privacy of sensitive content, and providing proper credit for ideas;
  - (B) discuss and apply copyright laws;
  - (C) model respect of intellectual property;
  - (D) demonstrate proper etiquette and knowledge of acceptable use policies; and
  - (E) analyze the impact of the animation industry on society, including concepts related to persuasiveness, marketing, and point of view.
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**(8) The student develops employability characteristics. The student is expected to:**

- (A) identify and participate in training, education, or certification for employment;
  - (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable;
  - (C) demonstrate skills related to seeking and applying for employment;
  - (D) create a career portfolio to document work experiences, licenses, certifications, and work samples;
  - (E) demonstrate skills in evaluating and comparing employment opportunities; and
  - (F) examine employment opportunities in entrepreneurship.
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**(9) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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- (10) The student develops an understanding of animation. The student is expected to:**
- (A) demonstrate appropriate use of hardware components;
  - (B) demonstrate appropriate use of software programs;
  - (C) demonstrate appropriate use of storage devices;
  - (D) demonstrate knowledge of sound editing;
  - (E) demonstrate knowledge of file formats and cross-platform compatibility;
  - (F) acquire information in a variety of electronic formats;
  - (G) evaluate visual information by:
    - recognizing the use of principles and elements of design; and
    - recognizing the use of typography;
  - (H) use an appropriate design process to create and modify solutions to problems by:
    - combining graphics, images, and sound;
    - applying principles of design;
    - developing and referencing technical documentation; and
    - editing products;
  - (I) publish and deliver the product in a variety of media;
  - (J) research the history and evolution of animation by:
    - explaining the history of animation;
    - describing how changing technology is affecting the industry;
    - analyzing the use of symbols in the animation of diverse cultures;
    - comparing current animation technologies with historical technologies;
    - comparing various styles of animation; and
    - exploring emerging and innovative animation technologies and software;
  - (K) understand and apply animation principles, elements, and techniques by:
    - describing and using audience identification, script writing, character design, storyboarding, audio uses, and delivery formats;
    - describing and using cell, stop motion, inbetweening/tweening, motion paths, masking, looping, scripting/programming, and interactivity;
    - describing lighting and camera shots;
    - describing and using flip books, claymation, and cut-outs;
    - rendering; and
    - describing and using post-production processes such as editing, titles, credits, and special effects;
  - (L) evaluate a product using critical-thinking skills;
  - (M) present oral or written evaluations of animation projects by:
    - identifying the intended audience;
    - describing aesthetics;
    - explaining the storyline;
    - summarizing subject matter; and
    - discussing the use of sound;
  - (N) create animation projects using a variety of techniques and software programs.
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## Advanced Animation

- (1) The student applies academic knowledge and skills in animation projects. The student is expected to:**
- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary using correct grammar, punctuation, and terminology to write and edit documents; and
  - (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve problems.
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- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills to obtain and clarify information;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills to increase internal and external customer/client satisfaction.
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- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
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- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for animation projects.**
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- (5) The student understands animation systems. The student is expected to analyze and summarize the history and evolution of the animation field.**
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- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.

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**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
- (B) employ teamwork and conflict-management skills to achieve collective goals;
- (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
- (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
- (E) employ mentoring skills to inspire and teach others.

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**(8) The student applies ethical decision making and complies with laws regarding use of technology in animation. The student is expected to:**

- (A) exhibit ethical conduct;
- (B) apply copyright laws;
- (C) model respect for intellectual property; and
- (D) demonstrate proper etiquette and knowledge of acceptable use policies.

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**(9) The student develops employability characteristics. The student is expected to:**

- (A) participate in training, education, or certification for employment;
- (B) demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills; and
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples.

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**(10) The student applies advanced technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops an advanced technical understanding of animation. The student is expected to:**

- (A) operate communication systems to prepare and conduct verbal and visual communication;
- (B) use production elements such as transitions, edits, framing, angle, and lighting techniques;
- (C) use orthographic and isometric drawing techniques;
- (D) demonstrate familiarity with commercial production applications;
- (E) demonstrate animation principles and elements by:
  - applying animation principles such as arcs, timing, and exaggeration; and
  - identifying animation elements such as cycles, layers, transitions, and transparency;
- (F) apply the elements and principles of art to animation projects by:
  - identifying animation design elements such as line, color, shape, and texture;
  - explaining the use of additive color theory; and
  - comparing various styles of animation;
- (G) apply pre-production processes by:
  - analyzing target audience to identify needs and wants;
  - writing and editing scripts;
  - storyboarding; and
  - selecting aspect ratio and frame rate appropriate to delivery method;
- (H) apply production processes by:
  - designing color and compositional elements;
  - designing characters, environments, and props;
  - modeling characters, environments, and props;
  - lighting sets or animating lights as needed;
  - developing rigs for animating characters;
  - assembling particle systems for visual effects such as rain, snow, and fire;
  - animating characters, environments, or cameras;
  - recording musical scores; and
  - rendering scenes; and
- (I) apply post-production processes by:
  - editing;
  - producing titles and credits;
  - adding visual effects and processing;
  - adding audio effects and processing; and
  - producing output.

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**Audio/Video Production**

**(1) The student applies academic knowledge and skills in audio and video projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as scripts, captions, schedules, reports, and manuals; and
- (B) apply mathematics knowledge and skills in invoicing and time-based mathematics by demonstrating knowledge of arithmetic operations and applying measurement to solve problems.

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**(2) The student understands professional communications strategies. The student is expected to:**

- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
- (B) organize oral and written information;
- (C) interpret and communicate information, data, and observations;
- (D) present formal and informal presentations;
- (E) apply active listening skills;
- (F) listen to and speak with diverse individuals; and
- (G) exhibit public relations skills.

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**(3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**

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**(4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for audio/video production projects.**

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**(5) The student understands design systems. The student is expected to analyze and summarize the history and evolution of the audio and video production fields.**

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**(6) The student applies safety regulations. The student is expected to:**

- (A) implement personal and workplace safety rules and regulations;
- (B) follow emergency procedures; and
- (C) examine and summarize safety-related problems that may result from working with electrical circuits.

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**(7) The student develops leadership characteristics. The student is expected to:**

- (A) employ leadership skills;
- (B) employ teamwork and conflict-management skills;
- (C) conduct and participate in meetings; and
- (D) employ mentoring skills.

- 
- (8) The student applies ethical decision making and complies with laws regarding use of technology in audio and video production. The student is expected to:**
- (A) exhibit ethical conduct related to interacting with others and providing proper credit for ideas;
  - (B) discuss and apply copyright laws in relation to fair use and acquisition;
  - (C) model respect of intellectual property; and
  - (D) analyze the ethical impact of the audio and video production industry on society.

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- (9) The student develops employability characteristics. The student is expected to:**
- (A) identify and participate in training, education, or certification required for employment;
  - (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable;
  - (C) demonstrate skills related to seeking and applying for employment;
  - (D) develop a resumé and letter of application;
  - (E) create a career portfolio to document work experiences, licenses, certifications, and work samples;
  - (F) demonstrate skills in evaluating and comparing employment opportunities; and
  - (G) examine employment opportunities in entrepreneurship.

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- (10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops a basic understanding of audio and video production. The student is expected to:**

- (A) understand the industry, including history, current practice, and future trends by:
  - <ol type="i"><li>explaining the beginnings and evolution of audio, video, and film;</li><li>describing how the changing technology is impacting the audio, video, and film industries; and</li><li>defining terminology associated with the industry;</li></ol>
- (B) employ knowledge regarding use of audio by:
  - <ol type="i"><li>identifying the key elements required in audio scripts;</li><li>applying writing skills to develop an audio script;</li><li>explaining how various styles of music can create a specific emotional impact;</li><li>identifying various audio tape, tapeless, and file formats;</li><li>understanding various microphones based upon type and pickup patterns; and</li><li>understanding various audio cables and connectors;</li></ol>
- (C) employ knowledge regarding use of video by:
  - <ol type="i"><li>identifying the key elements required in video scripts;</li><li>applying writing skills to develop a video script;</li><li>identifying various video tape, tapeless, and file formats;</li><li>understanding various video cables and connectors;</li><li>distinguishing between analog and digital formats;</li><li>demonstrating operation of video cameras; and</li><li>demonstrating how to properly maintain video equipment;</li></ol>
- (D) demonstrate various cinematography techniques by:
  - <ol type="i"><li>demonstrating how to frame and maintain picture composition;</li><li>demonstrating focusing techniques;</li><li>demonstrating camera and tripod movements; and</li><li>demonstrating proper exposure and white balance; and</li></ol>
- (E) edit basic audio and video productions by:
  - <ol type="i"><li>understanding the differences in linear and nonlinear systems;</li><li>demonstrating skills required for editing using linear and nonlinear systems;</li><li>employing knowledge of control peripherals for capturing or ingesting media; and</li><li>describing various digital platforms, including high definition and standard definition.</li></ol>

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**(12) The student understands the pre-production process. The student is expected to:**

- (A) identify critical elements in the pre-production stage;
- (B) use technology applications to facilitate pre-production by:
  - designing and implementing procedures to track trends, set timelines, and evaluate progress for continual improvement in process and product;
  - responding to advice from peers and professionals;
  - creating technology specifications;
  - monitoring process and product quality using established criteria;
  - creating a script and identifying resources needed to begin the production; and
  - identifying budgeting considerations for crew, cast, and equipment;
- (C) analyze the script and storyboard development processes for a successful production;
- (D) identify and participate in the team roles required for completion of a production;
- (E) identify equipment, crew, and cast requirements for a scripted production; and
- (F) understand the casting or audition process.

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**(13) The student understands the production process. The student is expected to:**

- (A) understand the coherent sequence of events to successfully produce a script;
- (B) use lighting techniques by:
  - demonstrating three-point lighting, including key, fill, and back lights;
  - using reflected light;
  - understanding color temperatures; and
  - using filters;
- (C) understand audio techniques, including microphone variances and sound mixing; and
- (D) demonstrate knowledge of interpersonal skills with sensitivity to diversity when directing crew or talent.

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**(14) The student understands the post-production process. The student is expected to:**

- (A) demonstrate appropriate use of hardware components, software programs, and their connections by:
    - demonstrating knowledge of video systems such as digital and analog systems, software applications, and communication and networking components;
    - using various computer peripherals appropriately;
    - making appropriate decisions regarding the selection of software; and
    - making necessary adjustments regarding compatibility issues, including digital file formats and cross-platform connectivity;
  - (B) apply animation effects to video by:
    - using character generators, fonts, colors, and principles of compositions to create graphic images; and
    - creating captions or titles for video and graphics;
  - (C) demonstrate proficiency in the use of a variety of electronic input devices;
  - (D) use a variety of strategies to acquire information from online resources;
  - (E) acquire electronic information in a variety of formats;
  - (F) use different compression techniques to output for distribution;
  - (G) format digital information for effective communication with a defined audience by:
    - using appropriate font attributes and color;
    - using appropriate white space and graphics;
    - using appropriate camera perspective;
    - using appropriate content selection and presentation; and
    - understanding target audiences and demographics;
  - (H) deliver the product in a variety of media by:
    - understanding the various delivery formats such as disk, broadcast, cellular, portable device, electronic, and online delivery;
    - researching to determine appropriate delivery method based on distribution needs; and
    - extending the learning environment through digital sharing;
  - (I) use appropriate computer-based productivity tools to create and modify solutions to problems by:
    - integrating productivity tools;
    - creating audio and video technology products for a variety of purposes and audiences;
    - developing technical documentation related to audio and video technology; and
    - critiquing a production; and
  - (J) use technology applications to facilitate evaluation of work, both process and product by:
    - evaluating the project's success in meeting established criteria; and
    - researching the best method for promoting the product.
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## **Advanced Audio/Video Production**

- (1) The student applies academic knowledge and skills in production projects. The student is expected to:**
- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as scripts, captions, schedules, reports, and manuals; and
  - (B) apply mathematics knowledge and skills in invoicing and time-based mathematics by demonstrating knowledge of arithmetic operations and applying measurement to solve problems.
- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills to obtain and clarify information;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills to increase internal and external customer/client satisfaction.
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- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
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- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for audio and video production projects.**
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- (5) The student applies knowledge of design systems. The student is expected to analyze and summarize the history and evolution of the audio/video production field.**
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- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.

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**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
- (B) employ teamwork and conflict-management skills to achieve collective goals;
- (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
- (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
- (E) employ mentoring skills to inspire and teach others.

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**(8) The student applies ethical decision making and complies with laws regarding use of technology in audio/video production. The student is expected to:**

- (A) exhibit ethical conduct;
- (B) apply copyright laws;
- (C) model respect for intellectual property; and
- (D) demonstrate proper etiquette and knowledge of acceptable use policies.

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**(9) The student develops employability characteristics. The student is expected to:**

- (A) participate in training, education, or certification for employment;
- (B) demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment;
- (D) update a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) demonstrate skills in evaluating and comparing employment opportunities.

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**(10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student demonstrates an understanding of audio/video production equipment. The student is expected to:**

- (A) understand standard systems for the audio/video industry by:
  - <li>setting up editing systems and performing standard trouble-shooting;</li>
  - <li>understanding knowledge of wireless and wired transmission systems;</li>
  - <li>identifying appropriate cabling and configurations for engineering purposes;</li>
  - <li>setting up cabling for various productions; and</li>
  - <li>routing standard cabling for broadcasting signal;</li></ol>
- (B) employ knowledge regarding use of recording equipment by:
  - <li>explaining uses of analog and digital formats;</li>
  - <li>describing tape and tapeless formats;</li>
  - <li>demonstrating the operation of recording devices;</li>
  - <li>demonstrating how to properly maintain recording equipment; and</li>
  - <li>demonstrating how to properly meter a recording signal for proper levels; and</li></ol>
- (C) demonstrate appropriate usage of industry-related terminology.

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**(12) The student understands the pre-production process. The student is expected to:**

- (A) apply critical elements in the pre-production stage;
- (B) use advanced technology applications to facilitate pre-production by:
  - <li>demonstrating procedures to establish timelines; and</li>
  - <li>developing a budget with considerations for crew, cast, and equipment;</li></ol>
- (C) write production scripts for various types of programs by:
  - <li>using proper formatting for the specific type of script;</li>
  - <li>identifying specific elements of the script needed for successful production, including cast, props, or sound effects; and</li>
  - <li>discussing how various styles of music can create a specific emotional impact;</li></ol>
- (D) determine equipment, crew, and cast requirements for a successful production by:
  - <li>examining the end goal of the production to determine the appropriate format for recording and distribution;</li>
  - <li>identifying several means to work within budget restraints;</li>
  - <li>conducting auditions for the talent; and</li>
  - <li>securing the crew required for a successful production; and</li></ol>
- (E) examine various contracts related to industry tasks by:
  - <li>using talent releases for productions;</li>
  - <li>examining key elements for talent work contracts;</li>
  - <li>examining key elements for crew contracts; and</li>
  - <li>examining key elements in distribution contracts.</li></ol>

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**(13) The student applies the production process. The student is expected to:**

- (A) apply the coherent sequence of events to successfully produce a script;
- (B) demonstrate a knowledge of audio techniques by:
  1. identifying various microphone types;
  2. understanding the various microphone pickup patterns;
  3. demonstrating understanding of sound mixing;
  4. demonstrating understanding of a final audio mix;
- (C) execute production of the script by:
  1. demonstrating teamwork and knowledge of interpersonal skills with sensitivity to diversity when directing crew and talent; and
  2. applying knowledge of the critical elements in designing activities in the production stage;
- (D) employ knowledge of digital editing by:
  1. addressing various distribution formats, including electronic, disk, tapeless, and tape; and
  2. capturing media to an editing system for the purpose of manipulating recorded media; and
- (E) employ knowledge of recording equipment by:
  1. using proper monitoring of equipment to ensure quality recordings;
  2. setting appropriate levels before recording using broadcast standard tools; and
  3. identifying standards for logging notes or comments in the original recording process.

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**(14) The student understands the post-production process. The student is expected to:**

- (A) apply knowledge and appropriate use of hardware components, software programs, and their connections by:
  1. demonstrating knowledge and appropriate use of digital systems such as software applications, communication, and networking components;
  2. demonstrating an understanding of various input, processing, output, and storage devices;
  3. demonstrating an understanding of compatibility issues, including digital file formats and cross-platform connectivity; and
  4. demonstrating an understanding of high definition and standard definition output media;
- (B) acquire electronic information in a variety of formats;
- (C) use various compression formats by:
  1. demonstrating knowledge of outputting for distribution; and
  2. understanding the relationship between file size and quality;
- (D) deliver the product in a variety of media by:
  1. understanding the various delivery formats such as disk, broadcast, cellular, portable devices, electronic, and online delivery; and
  2. researching to determine the appropriate delivery method based upon distribution need; and
- (E) use appropriate computer-based productivity tools to create and modify solutions to problems by:
  1. integrating productivity tools to develop and modify solutions to problems;
  2. developing technical documentation related to project specifications; and
  3. critiquing a production to determine how the various elements resulted in a successful or unsuccessful presentation.

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**(15) The student understands the business aspects of the industry. The student is expected to:**

- (A) understand the roles of various industry professionals by:
- discussing the responsibilities of producers;
  - discussing the responsibilities of directors, including the relationship to the production team and the responsibilities of crew members;
  - discussing the duties of editors;
  - discussing the responsibilities of engineers;
  - discussing the responsibilities of the talent; and
  - discussing the responsibilities of the sales team;
- (B) understand the opportunities in the industry for freelance contractors by:
- identifying standard freelance self-promotion techniques;
  - understanding how to create invoices;
  - understanding standard billing practices for freelance labor;
  - researching rates and best practices for various freelance job responsibilities; and
  - identifying information technology applications common for small businesses;
- (C) understand the unique characteristics of live productions by:
- identifying roles specific to live productions;
  - identifying the importance of time accountability;
  - demonstrating an understanding of back-timing and time-based mathematics;
  - demonstrating an understanding of Federal Communications Commission guidelines for broadcast appropriateness;
  - identifying equipment standard for live productions; and
  - identifying strategies for financially supporting live productions;
- (D) understand the unique characteristics of studio productions by:
- identifying roles unique to studio productions;
  - identifying costs specific to studio productions;
  - identifying equipment standard for studio productions; and
  - identifying strategies for financially supporting studio productions; and
- (E) understand the unique characteristics of field production by:
- identifying roles unique to field productions;
  - identifying costs specific to field productions;
  - identifying equipment standard for field productions; and
  - identifying strategies for financially supporting field productions.

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**(16) The student understands the broadcast standards established by the Federal Communications Commission. The student is expected to:**

- (A) apply knowledge of broadcast formats by:
  - distinguishing between analog and digital formats;
  - describing the difference in data signals and equipment for analog and digital technology;
  - identifying the evolution of the broadcast signal; and
  - identifying various broadcast standards, including National Television System Committee, Phase Alternating Line, and Sequential Color with Memory;
- (B) identify radio and television frequencies location in the electromagnetic spectrum; and
- (C) differentiate among various media by:
  - identifying the evolution of various tape formats;
  - identifying the evolution of various tapeless formats;
  - identifying the evolution of various electronic formats;
  - identifying the evolution of various online delivery systems; and
  - identifying the various film formats.

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**Practicum in Audio/Video Production**

**(1) The student applies academic knowledge and skills in production projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as scripts, captions, schedules, reports, and manuals; and
- (B) apply mathematics knowledge and skills in invoicing and time-based mathematics by demonstrating knowledge of arithmetic operations and applying measurement to solve problems.

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**(2) The student implements advanced professional communications strategies. The student is expected to:**

- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
- (B) organize oral and written information;
- (C) interpret and communicate information, data, and observations;
- (D) present formal and informal presentations;
- (E) apply active listening skills to obtain and clarify information;
- (F) listen to and speak with diverse individuals; and
- (G) exhibit public relations skills to increase internal and external customer/client satisfaction.

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**(3) The student implements advanced problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills, including data gathering and interpretation independently and in teams to solve problems and make decisions.**

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**(4) The student implements advanced information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for audio and video projects.**

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**(5) The student implements advanced knowledge of design systems. The student is expected to analyze and summarize the history and evolution of the audio and video production field.**

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**(6) The student applies safety regulations. The student is expected to:**

- (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.
- 

**(7) The student implements leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
  - (B) employ teamwork and conflict-management skills to achieve collective goals;
  - (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
  - (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
  - (E) employ mentoring skills to inspire and teach others.
- 

**(8) The student implements ethical decision making and complies with laws regarding use of technology. The student is expected to:**

- (A) exhibit ethical conduct related to providing proper credit for ideas and privacy of sensitive content;
- (B) discuss and apply copyright laws in relation to fair use and acquisition and use of digital information by citing sources using established methods;
- (C) model respect of intellectual property when manipulating, morphing, and editing graphics, video, text, and sound;
- (D) demonstrate proper etiquette and knowledge of acceptable use policies when using networks, especially resources on the Internet and intranet; and
- (E) analyze the impact of the audio/video production industry on society, including concepts related to persuasiveness, marketing, and point of view.

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**(9) The student demonstrates appropriate employability characteristics and maintains a professional portfolio. The student is expected to:**

- (A) identify and participate in training, education, or certification to prepare for employment;
- (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable such as self-discipline, self-worth, positive attitude, integrity, and commitment;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples;
- (E) demonstrate skills in evaluating and comparing employment opportunities; and
- (F) examine employment opportunities in entrepreneurship.

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**(10) The student employs effective planning and time-management skills. The student is expected to employ planning and time-management skills and tools to enhance results and complete work tasks.**

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**(11) The student implements an advanced understanding of a client-based production. The student is expected to:**

- (A) determine client needs by:
  - conducting client meetings to identify specific project requirements; and
  - researching target audience and demographics to meet client needs;
- (B) develop a production proposal for client approval by:
  - creating a production schedule;
  - researching and determining production costs; and
  - researching and determining appropriate delivery and distribution options;
- (C) engage in pre-production activities for successful execution of the project by:
  - identifying equipment, crew, and cast requirements;
  - developing a budget with considerations for crew, cast, and equipment;
  - analyzing the script and storyboard processes; and
  - assigning team roles required for production;
- (D) conduct a client meeting for presenting production strategies and implement client feedback;
- (E) apply advanced principles of production by:
  - implementing a coherent sequence of events;
  - using necessary equipment and crew for quality productions; and
  - demonstrating teamwork and knowledge of interpersonal skills with sensitivity to diversity;
- (F) implement advanced skills in the post-production process by:
  - demonstrating appropriate use of editing systems;
  - making decisions appropriate for each element of production;
  - making necessary adjustments regarding compatibility issues, including digital file formats and cross-platform connectivity;
  - using various compression formats; and
  - demonstrating knowledge in outputting for distribution; and
- (G) deliver the product by:
  - researching the appropriate delivery formats for the target audience;
  - advising clients on optimal delivery options; and
  - discussing distribution options with optimal project reach.

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**(12) The student practices business skills for freelance contractors. The student is expected to:**

- (A) implement standard freelance self-promotion techniques;
  - (B) develop invoices and standard billing practices;
  - (C) research small-business start up practices; and
  - (D) use information technology applications common to small businesses.
-

## Graphic Design and Illustration

- (1) The student applies academic knowledge and skills in art and design projects. The student is expected to:**
  - (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures, programs, posters, flyers, and magazine covers; and
  - (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.

---
- (2) The student understands professional communications strategies. The student is expected to:**
  - (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.

---
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**

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- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for art and design projects.**

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- (5) The student understands design systems. The student is expected to analyze and summarize the history and evolution of related fields.**

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- (6) The student applies safety regulations. The student is expected to:**
  - (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.

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**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills;
- (B) employ teamwork and conflict-management skills;
- (C) conduct and participate in meetings; and
- (D) employ mentoring skills.

---

**(8) The student applies ethical decision making and understands and complies with laws regarding use of technology in graphic design and illustration. The student is expected to:**

- (A) exhibit ethical conduct related to interacting with others such as client confidentiality, privacy of sensitive content, and providing proper credit for ideas;
- (B) discuss and apply copyright laws in relation to fair use and acquisition;
- (C) model respect for intellectual property;
- (D) demonstrate proper etiquette and knowledge of acceptable use policies; and
- (E) analyze the impact of the advertising and visual communication design industry on society, including concepts related to persuasiveness, marketing, and point of view.

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**(9) The student develops employability characteristics. The student is expected to:**

- (A) identify and participate in training, education, or certification for employment;
- (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking employment to find and obtain a desired job;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) examine employment opportunities in entrepreneurship.

---

**(10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops an increasing understanding of graphic design and illustration. The student is expected to:**

- (A) research art and design career opportunities and qualifications;
- (B) research the history and evolution of art and design by:
  - <li>explaining the history of visual arts and design;</li><li>understanding general characteristics in artwork from a variety of cultures; and</li><li>comparing current visual arts technologies with historical technologies;</li></ol>
  - (C) interpret, evaluate, and justify design decisions;
  - (D) conduct oral or written critiques of designs by:
    - <li>applying a critical method of evaluation;</li><li>communicating an oral or written defense; and</li><li>evaluating oral or written feedback;</li></ol>
    - (E) analyze and apply art elements and principles;
    - (F) employ a creative design process to create original two- or three-dimensional projects by:
      - <li>creating designs for defined applications;</li><li>applying elements of design;</li><li>applying design principles and typography;</li><li>using good composition;</li><li>demonstrating anatomical figure drawing;</li><li>demonstrating drawing in one-point, two-point, and multi-point perspective;</li><li>creating a project by applying color; and</li><li>applying printing concepts;</li></ol>
      - (G) apply art elements and principles to photographic works; and
      - (H) apply art elements and principles to multimedia applications.

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**Advanced Graphic Design and Illustration**

**(1) The student applies academic knowledge and skills in art and design projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures, programs, posters, flyers, and magazine covers; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.

- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.
- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for art and graphic design projects.**
- 
- (5) The student applies knowledge of design systems. The student is expected to analyze and summarize the history and evolution of related fields.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.
- 
- (7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**
- (A) employ leadership skills;
  - (B) employ teamwork and conflict-management skills;
  - (C) conduct and participate in meetings; and
  - (D) employ mentoring skills.
- 
- (8) The student applies ethical decision making and complies with laws regarding use of technology in art and design. The student is expected to:**
- (A) exhibit ethical conduct;
  - (B) apply copyright laws;
  - (C) model respect for intellectual property; and
  - (D) demonstrate proper etiquette and knowledge of acceptable use policies.

---

**(9) The student applies employability characteristics. The student is expected to:**

- (A) participate in training, education, or certification for employment;
- (B) demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) demonstrate skills in evaluating and comparing employment opportunities.

---

**(10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

---

**(11) The student develops an advanced understanding of graphic design and illustration. The student is expected to:**

- (A) interpret, evaluate, and justify design decisions;
- (B) participate in oral or written critiques of designs by:
  - applying a critical method of evaluation; and
  - communicating an oral or written defense;
- (C) apply art elements and principles to designs and illustrations; and
- (D) employ a creative design process to create original two- or three-dimensional projects by:
  - creating designs for defined applications;
  - applying elements of design;
  - applying design principles and typography;
  - using appropriate composition;
  - using anatomically appropriate figure drawing;
  - using appropriate perspective;
  - using the most effective color choices in projects; and
  - using printing concepts.

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**Practicum in Graphic Design and Illustration**

**(1) The student applies academic knowledge and skills in art and design projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures, programs, posters, flyers, and magazine covers; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.

---

**(2) The student implements advanced professional communications strategies. The student is expected to:**

- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
- (B) organize oral and written information;
- (C) interpret and communicate information, data, and observations;
- (D) present formal and informal presentations;
- (E) apply active listening skills to obtain and clarify information;
- (F) listen to and speak with diverse individuals; and
- (G) exhibit public relations skills to increase internal and external customer/client satisfaction.

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**(3) The student implements advanced problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills, including data gathering and interpretation independently and in teams to solve problems and make decisions.**

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**(4) The student implements advanced information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for graphic design and illustration projects.**

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**(5) The student implements advanced knowledge of design systems. The student is expected to analyze and summarize the history and evolution of the commercial art and design field.**

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**(6) The student applies safety regulations. The student is expected to:**

- (A) implement personal and workplace safety rules and regulations; and
- (B) follow emergency procedures.

---

**(7) The student implements leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
- (B) employ teamwork and conflict-management skills to achieve collective goals;
- (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
- (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
- (E) employ mentoring skills to inspire and teach others.

---

**(8) The student applies ethical decision making and complies with laws regarding use of technology. The student is expected to:**

- (A) exhibit ethical conduct related to interacting with others such as client confidentiality, privacy of sensitive content, and providing proper credit for ideas;
- (B) discuss and apply copyright laws in relation to fair use and acquisition and use of digital information by citing sources using established methods;
- (C) model respect of intellectual property when manipulating, morphing, and editing graphics, video, text, and sound;
- (D) demonstrate proper etiquette and knowledge of acceptable use policies when using networks, especially resources on the Internet and intranet; and
- (E) analyze the impact of the advertising and visual communication design industry on society, including concepts related to persuasiveness, marketing, and point of view.

---

**(9) The student demonstrates appropriate employability characteristics and maintains a professional portfolio. The student is expected to:**

- (A) identify and participate in training, education, or preparation for certification to prepare for employment;
- (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable such as self-discipline, self-worth, positive attitude, integrity, and commitment;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples;
- (E) demonstrate skills in evaluating and comparing employment opportunities; and
- (F) examine employment opportunities in entrepreneurship.

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**(10) The student applies effective planning and time-management skills. The student is expected to employ tools to enhance results and complete work tasks.**

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**(11) The student uses advanced graphic design and illustration methods and skills. The student is expected to:**

- (A) interpret, evaluate, and justify design decisions;
  - (B) conduct verbal or written critiques of design projects;
  - (C) apply art elements and principles to designs and illustrations; and
  - (D) employ a creative design process to create professional quality two- or three-dimensional projects by:
    - creating designs for defined applications;
    - using appropriate elements of design;
    - using appropriate design principles and typography;
    - using appropriate composition;
    - using anatomically appropriate figure drawing;
    - using appropriate perspective;
    - using the most effective color choices in projects; and
    - using appropriate printing concepts.
-

## Commercial Photography

- (1) The student applies academic knowledge and skills in commercial photography. The student is expected to:**
- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures; and
  - (B) apply mathematics knowledge and skills by identifying whole numbers, decimals and fractions applied to measurement, percentages, depth of field, aperture, resolution, and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.
- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) give formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.
- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for commercial photography projects.**
- 
- (5) The student understands commercial photography systems. The student is expected to analyze and summarize the history and evolution of commercial photography.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.

---

**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills;
  - (B) employ teamwork and conflict-management skills;
  - (C) conduct and participate in meetings; and
  - (D) employ mentoring skills.
- 

**(8) The student applies ethical decision making and understands and complies with laws regarding use of technology in commercial photography. The student is expected to:**

- (A) exhibit ethical conduct related to interacting with others such as client confidentiality, privacy of sensitive content, and providing proper credit for ideas;
  - (B) discuss and apply copyright laws in relation to fair use and duplication of images;
  - (C) model respect for intellectual property when manipulating, morphing, and editing digital images; and
  - (D) analyze the impact of photography on society, including concepts related to persuasiveness, marketing, and point of view.
- 

**(9) The student develops employability characteristics. The student is expected to:**

- (A) identify and participate in training, education, or certification for employment;
  - (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable;
  - (C) demonstrate skills related to seeking employment to find and obtain a desired job;
  - (D) create a career portfolio to document work experiences, licenses, certifications, and work samples; and
  - (E) examine employment opportunities in entrepreneurship.
- 

**(10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops an increasing understanding of commercial photography.**

**The student is expected to:**

- (A) research career opportunities and qualifications in photography;
- (B) research the history and evolution of photography;
- (C) analyze principles of commercial photography such as working with clients, interpreting client instructions, developing production schedules, and delivering products in a competitive market;
- (D) analyze and apply the elements and principles of art to photographs;
- (E) demonstrate knowledge of different types of cameras and lenses and their applications to photography;
- (F) demonstrate knowledge of good photographic composition and layout;
- (G) demonstrate knowledge of the characteristics of different types of photographic media;
- (H) demonstrate knowledge of the basics of black and white and color photography processes;
- (I) demonstrate knowledge of photographic lighting techniques;
- (J) identify characteristics of various types of photographic paper;
- (K) demonstrate an understanding of standard conventions for mounting, matting, and framing;
- (L) produce a variety of photographs using current, industry-standard production processes; and
- (M) evaluate photographs using principles of art, commercial photography standards, and critical-thinking skills.

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**Advanced Commercial  
Photography**

**(1) The student applies academic knowledge and skills in commercial photography.  
The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement, percentages, depth of field, aperture, resolution, and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.

- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills to obtain and clarify information;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills to increase internal and external customer/client satisfaction.
- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for commercial photography projects.**
- 
- (5) The student applies knowledge of commercial photography systems. The student is expected to analyze and summarize the history and evolution of the commercial photography field.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.

---

**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders with organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities;
- (B) employ teamwork and conflict-management skills to achieve collective goals;
- (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
- (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
- (E) employ mentoring skills to inspire and teach others.

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**(8) The student applies ethical decision making and complies with laws regarding use of technology in commercial photography. The student is expected to:**

- (A) exhibit ethical conduct;
- (B) apply copyright laws;
- (C) model respect for intellectual property; and
- (D) demonstrate proper etiquette and knowledge of acceptable use policies.

---

**(9) The student develops employability characteristics. The student is expected to:**

- (A) participate in training, education, or certification for employment;
- (B) demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) demonstrate skills in evaluating and comparing employment opportunities.

---

**(10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops an increasing understanding of commercial photography.**

**The student is expected to:**

- (A) create photographs for defined purposes;
- (B) apply the elements and principles of art to a variety of commercial photography projects;
- (C) use principles of commercial photography;
- (D) use appropriate cameras and lenses;
- (E) apply appropriate photographic composition and layout principles;
- (F) use appropriate black and white and color photography processes;
- (G) apply effective photographic lighting techniques;
- (H) produce professional quality photographs;
- (I) use the most appropriate types of photographic paper for projects;
- (J) use the most appropriate solutions for mounting, matting, and framing photographs;
- (K) use appropriate current, industry-standard production processes to produce photographs; and
- (L) evaluate photographs using principles of art, commercial photography standards, and critical-thinking skills.

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**Fashion Design**

**(1) The student applies academic knowledge and skills in fashion, textile, and apparel projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as patterns, brochures, advertisements, and press releases; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve problems.

- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) give formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.
- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for fashion, textiles, and apparel projects.**
- 
- (5) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.
- 
- (6) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**
- (A) employ leadership skills;
  - (B) employ teamwork and conflict-management skills;
  - (C) conduct and participate in meetings; and
  - (D) employ mentoring skills.
- 
- (7) The student applies ethical decision making and understands and complies with laws regarding use of technology in fashion, textiles, and apparel. The student is expected to:**
- (A) exhibit ethical conduct related to interacting with others such as client confidentiality, privacy of sensitive content, and providing proper credit for ideas;
  - (B) discuss and apply copyright laws in relation to fair use and duplication of materials; and
  - (C) analyze the impact of the fashion industry on society, including concepts related to persuasiveness, marketing, and point of view.

---

**(8) The student develops employability characteristics. The student is expected to:**

- (A) identify and participate in training, education, or certification for employment;
- (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job;
- (D) create a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) examine employment opportunities in entrepreneurship.

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**(9) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(10) The student develops an understanding of fashion and the textile and apparel industries. The student is expected to:**

- (A) analyze the nature and scope of fashion by:
  - <li>explaining the importance of fashion;
  - <li>demonstrating knowledge of fashion history relative to current fashions;
  - <li>describing the spectrum of fashion businesses;
  - <li>identifying prominent fashion publications;
  - <li>summarizing the fashion process; and
  - <li>using appropriate terminology;
- (B) use knowledge of textile and apparel manufacturing systems by:
  - <li>summarizing aspects of the textile and apparel industries;
  - <li>comparing the organizational structures common in textile and apparel manufacturing;
  - <li>determining ethical practices within the textile and apparel industries; and
  - <li>describing factors that contribute to a safe working environment;
- (C) evaluate factors influencing the apparel industry by:
  - <li>describing the interrelationship of the apparel industry to the United States and international economies;
  - <li>explaining the impact of labor laws;
  - <li>summarizing procedures within the apparel industry that protect the environment; and
  - <li>describing technological advancements influencing the apparel industry;
- (D) analyze factors that impact consumer purchases of fashion and apparel accessories by:
  - <li>describing social, cultural, and life cycle influences on fashion and apparel preferences and management;
  - <li>explaining how fashion trends are determined;
  - <li>analyzing the influence of advertising on consumer apparel choices;
  - <li>evaluating textile products as to suitability for varied apparel uses; and
  - <li>determining apparel management techniques for individuals with special needs;
- (E) select proper care and maintenance practices for apparel by:
  - <li>interpreting labeling information to determine care procedures for apparel products;
  - <li>evaluating clothing care products and equipment;
  - <li>determining proper equipment and services related to care, maintenance, and storage of apparel;
  - <li>identifying proper safety procedures when using care products and equipment; and
  - <li>analyzing the impact of clothing care requirements on clothing selection and the clothing budget;
- (F) apply skills related to commercial care of clothing by:
  - <li>demonstrating procedures to receive, mark, and identify laundry or dry cleaning;
  - <li>determining appropriate laundry and dry cleaning procedures;
  - <li>demonstrating safety and sanitary procedures while laundering, pressing, or dry cleaning;
  - <li>applying commercial laundry or dry cleaning techniques; and
  - <li>demonstrating pressing procedures;
- (G) propose ways to effectively manage the apparel dollar by:
  - <li>proposing practices for effectively managing apparel and accessory costs, care, and maintenance;
  - <li>comparing various sources for apparel purchases;
  - <li>predicting the impact of technology on consumer apparel purchasing options; and
  - <li>developing ideas for recycling apparel;

- (H) design apparel products using principles of effective design by:
  - identifying basic body types;
  - determining clothing silhouettes, fabric selection, and design elements appropriate for specific body types;
  - using design elements and principles to design products for the human form, including adaptations for individuals with special needs;
  - using basic design tools and techniques such as fashion drawing, draping, and flat pattern methods for fitting a garment; and
  - determining technology applications useful in the apparel design process;
- (I) analyze the apparel production process from design concept to finished product by:
  - analyzing elements and principles of design as related to apparel; and
  - outlining the apparel production process;
- (J) apply knowledge of fibers, fabrics, and design when evaluating and designing textile products by:
  - analyzing characteristics and properties of natural and manufactured fibers;
  - describing methods of textile production; and
  - assessing the effects of various environmental conditions on textiles; and
- (K) demonstrate effective repair, alteration, and construction techniques by:
  - describing principles of quality apparel construction;
  - demonstrating appropriate use, selection, and care of equipment, tools, and notions;
  - applying design elements when designing, constructing, or altering apparel;
  - applying appropriate construction and pressing techniques in garment construction;
  - applying safety procedures while operating equipment; and
  - determining apparel design and alterations to accommodate individuals with special needs.

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## Advanced Fashion Design

### **(1) The student applies academic knowledge and skills in fashion, textile, and apparel projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as patterns, brochures, advertisements, and press releases; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve problems.

- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) give formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.
- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for fashion, textiles, and apparel projects.**
- 
- (5) The student understands fashion, textile, and apparel systems. The student is expected to analyze and summarize the history and evolution of the fashion, textiles, and apparel field.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.

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**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
- (B) employ teamwork and conflict-management skills to achieve collective goals;
- (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
- (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
- (E) employ mentoring skills to inspire and teach others.

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**(8) The student demonstrates ethical decision making and complies with legal practices pertaining to fashion, textiles, and apparel. The student is expected to:**

- (A) exhibit ethical conduct;
- (B) apply copyright laws;
- (C) model respect for intellectual property;
- (D) demonstrate knowledge of acceptable use policies;
- (E) summarize the rights and responsibilities of employers and employees;
- (F) exhibit ethical practices as defined by the fashion and apparel industries; and
- (G) analyze legal aspects of the fashion and apparel industries.

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**(9) The student develops employability characteristics. The student is expected to:**

- (A) participate in training, education, or certification for employment;
- (B) demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) demonstrate skills in evaluating and comparing employment opportunities.

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**(10) The student applies advanced technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

**(11) The student develops an advanced technical understanding of fashion, with emphasis on design and production. The student is expected to:**

- (A) describe how garment development and fashion have evolved from ancient times to present day by:
  - identifying significant historic fashions from early civilizations to today;
  - describing social influences that have affected fashion;
  - explaining values communicated through clothing in specific historical periods;
  - showing the influence of historic fashions on current-year fashion; and
  - identifying prominent historical designers;
- (B) analyze various types of worldwide fashion production by:
  - describing mass production techniques; and
  - describing the development of haute couture;
- (C) perform operations for various roles in the fashion industries by:
  - identifying tasks that employees may perform;
  - following procedures identified for performing tasks; and
  - applying resource management procedures when completing assigned tasks;
- (D) determine textile suitability for specific applications and uses by:
  - comparing processes for dyeing, printing, and finishing used in the textile industry;
  - explaining how finishes affect the characteristics of fabrics; and
  - recommending care procedures for various textile products;
- (E) determine implications of textile characteristics on apparel and fashion by:
  - outlining the textile design process from concept to finished product;
  - differentiating types and methods of textile production;
  - summarizing implications and methods of dyeing, printing, and finishing of textiles;
  - determining textile and apparel labeling requirements; and
  - determining factors affecting the cost of textile products;
- (F) determine design influences on the fashion industry by:
  - explaining the role of leading designers in determining fashion trends;
  - analyzing international factors affecting fashion design;
  - determining the impact of technology on the design industry; and
  - determining the impact of design decisions on product cost;
- (G) create a portfolio of fashion designs by:
  - demonstrating fashion figure drawing;
  - applying design elements and principles to create fashion drawings;
  - demonstrating the properties and characteristics of color;
  - using computer-aided techniques to create fashion designs;
  - selecting appropriate textiles to use in specific designs; and
  - assembling portfolio components to present fashion designs;
- (H) produce quality fashion products by:
  - outlining general procedures and equipment used in apparel design and pattern development;
  - identifying the processes for constructing custom made garments;
  - describing characteristics of proper fit;
  - applying correct procedures used in garment fitting, pattern making, and pattern alteration;
  - constructing custom made garments using appropriate tools, equipment,

and supplies; and</li><li>demonstrating safety practices when completing tasks related to garment construction; and</li></ol>

- (I) demonstrate basic techniques in personal fashion image analysis by:<ol style="list-style-type: none;" type="i"><li>describing techniques used to analyze the fashion image of individual clients;</li><li>explaining factors involved in fashion image consulting such as personal coloring, color harmonies, appropriate fabric textures, body proportion and silhouette, figure, facial and hair analysis, and wardrobe coordination; and</li><li>developing a personal fashion image evaluation for an individual.</li></ol>

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## Practicum in Fashion Design

### **(1) The student applies academic knowledge and skills in fashion, textile, and apparel projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as patterns, brochures, advertisements, and press releases; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.

---

### **(2) The student implements advanced professional communications strategies. The student is expected to:**

- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
- (B) organize oral and written information;
- (C) interpret and communicate information, data, and observations;
- (D) present formal and informal presentations;
- (E) apply active listening skills to obtain and clarify information;
- (F) listen to and speak with diverse individuals; and
- (G) exhibit public relations skills to increase internal and external customer/client satisfaction.

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### **(3) The student implements advanced problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**

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### **(4) The student implements advanced information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for fashion, textiles, and apparel projects.**

- 
- (5) The student implements advanced knowledge of fashion, textile, and apparel systems. The student is expected to analyze and summarize the history and evolution of the fashion, textiles, and apparel field.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.
- 
- (7) The student implements leadership characteristics to student leadership and professional development activities. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) give formal and informal presentations;
  - (E) apply active listening skills;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills.
- 
- (8) The student applies ethical decision making and complies with legal practices related to fashion, textiles, and apparel. The student is expected to:**
- (A) exhibit ethical conduct; and
  - (B) discuss and apply copyright laws.
- 
- (9) The student demonstrates employability characteristics. The student is expected to:**
- (A) identify and participate in training, education, or certification to prepare for employment;
  - (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable such as self-discipline, self-worth, positive attitude, integrity, and commitment;
  - (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
  - (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples;
  - (E) demonstrate skills in evaluating and comparing employment opportunities; and
  - (F) examine employment opportunities in entrepreneurship.
- 
- (10) The student implements technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

- 
- (11) The student implements an increasing understanding of the business aspects of fashion, with emphasis on promotion and retailing. The student is expected to:**
- (A) describe fundamentals of fashion buying by:
    - explaining processes for retail buying;
    - identifying wholesale market resources;
    - comparing various apparel marts;
    - analyzing how timing and pricing of fashion apparel and accessories are determined;
    - analyzing the price of a fashion product;
    - describing various types of retail outlets;
    - describing how offshore sourcing impacts fashion retailing; and
    - composing a scenario plan for retail pricing, sales and inventory, and purchasing;
  - (B) describe the relationship between marketing and the fashion industry by:
    - explaining the marketing concept;
    - relating marketing functions to the fashion industry;
    - explaining how each component of the marketing mix contributes to successful fashion marketing;
    - explaining the importance of target markets;
    - describing advantages and disadvantages of market segmentation and mass marketing;
    - researching trends and emerging technologies affecting fashion marketing;
    - determining examples of niche marketing;
    - describing cultural and societal influences on the fashion market; and
    - describing how international marketing has affected the fashion industry;
  - (C) develop, implement, and evaluate a promotional plan by:
    - identifying components of the promotional mix such as advertising, visual merchandising, and personal selling;
    - demonstrating visual merchandising techniques for fashion goods, services, or ideas;
    - analyzing a promotional plan for effectiveness;
    - describing deceptive practices in fashion promotion; and
    - employing ethical practices in promotional activities;
  - (D) apply marketing techniques when assisting with promotional activities by:
    - describing various types of business promotion strategies;
    - classifying types of customers and their motives for buying textile and apparel products;
    - describing roles of public relations and publicity in product promotion;
    - explaining the use of promotional activities to market textile and apparel products and services;
    - planning special fashion events such as fashion shows, trunk shows, retail shows, and educational events;
    - creating and developing a fashion show theme;
    - developing a scale drawing to illustrate fashion show sets and staging;
    - describing all fashion show responsibilities; and
    - writing press releases to publicize promotional activities;
  - (E) create product displays using the principles of design by:
    - identifying components used in developing displays;
    - determining ways in which design elements and principles are used in the creation of displays;
    - describing types and uses of interior and exterior displays; and
    - creating window or other displays of fashion and apparel products;
  - (F) demonstrate effective customer service by:
    - determining factors that promote quality customer relations;
    - evaluating the impact of

cultural diversity on customer relations;

- exhibiting skills needed for effective customer service;
- creating solutions to specific customer issues; and
- examining the role of selling fashion products in retail;

- (G) identify wholesale settings by:
  - analyzing motives for consumer fashion purchases;
  - describing qualities of an effective salesperson;
  - applying appropriate fashion vocabulary in selling situations; and
  - demonstrating effective sales techniques from customer approach to closure; and
- (H) summarize important business procedures in fashion retailing by:
  - explaining methods a business uses to control risks such as surveillance, safety training, and loss control;
  - explaining the use of inventory information such as preparing financial reports and making buying decisions;
  - demonstrating cash and credit transaction methods;
  - analyzing data used to make accurate forecasts;
  - demonstrating knowledge of the fashion buying process such as preparing a buying plan, completing purchase orders, and processing invoices;
  - examining operational costs such as markup, markdown, cash flow, and other factors affecting profit; and
  - demonstrating procedures for reporting and handling accidents, safety, and security incidents.

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## Printing and Imaging Technology

### (1) The student applies academic knowledge and skills in printing and imaging projects. The student is expected to:

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures, programs, and newsletters; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve a problem.

---

### (2) The student applies professional communications strategies. The student is expected to:

- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
- (B) organize oral and written information;
- (C) interpret and communicate information, data, and observations;
- (D) give formal and informal presentations;
- (E) apply active listening skills;
- (F) listen to and speak with diverse individuals; and
- (G) exhibit public relations skills.

- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for printing and imaging projects.**
- 
- (5) The student understands printing systems. The student is expected to analyze and summarize the history and evolution of the printing and imaging field.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) follow emergency procedures.
- 
- (7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**
- (A) employ leadership skills;
  - (B) employ teamwork and conflict-management skills;
  - (C) conduct and participate in meetings; and
  - (D) employ mentoring skills.
- 
- (8) The student applies ethical decision making and understands and complies with laws regarding use of technology in printing. The student is expected to:**
- (A) exhibit ethical conduct;
  - (B) apply copyright laws in relation to fair use and duplication of materials; and
  - (C) analyze the impact of the printing industry on society.
- 
- (9) The student develops employability characteristics. The student is expected to:**
- (A) identify and participate in training, education, or certification for employment;
  - (B) demonstrate positive work behaviors and personal qualities needed to be employable;
  - (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job;
  - (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples;
  - (E) demonstrate skills in evaluating and comparing employment opportunities; and
  - (F) examine employment opportunities in entrepreneurship.
- 
- (10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops a technical understanding of printing and imaging. The student is expected to:**

- (A) employ processes required for the production of various printed products by:
  - <ol type="i"><li>understanding the diversity of the printing process;</li><li>understanding the impact of the printing industry on the United States economy; and</li><li>understanding the impact of emerging technologies in hardware and software applications;</li></ol>
- (B) manage the printing process, including customer service and sales, scheduling, and quality control;
- (C) evaluate customer needs and materials;
- (D) acquire information in a variety of formats;
- (E) evaluate information for accuracy, validity, and usability;
- (F) apply desktop publishing to create products by:
  - <ol type="i"><li>using word processing, graphics, or drawing programs;</li><li>applying design elements such as text, graphics, headlines, use of color, and white space;</li><li>applying typography concepts, including font, size, and style;</li><li>applying graphic design concepts such as contrast, alignment, repetition, and proximity;</li><li>editing products; and</li><li>developing and referencing technical documentation;</li></ol>
- (G) prepare products for printing;
- (H) demonstrate knowledge and appropriate use of hardware components, software programs, and storage devices;
- (I) demonstrate knowledge of file and cross-platform compatibility;
- (J) deliver products in a variety of media; and
- (K) evaluate products.

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**Advanced Printing and Imaging Technology**

**(1) The student applies academic knowledge and skills in printing and imaging projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures, programs, and newsletters; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve problems.

- 
- (2) The student applies professional communications strategies. The student is expected to:**
- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills to obtain and clarify information;
  - (F) listen to and speak with diverse individuals; and
  - (G) exhibit public relations skills to increase internal and external customer/client satisfaction.
- 
- (3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**
- 
- (4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for printing and imaging projects.**
- 
- (5) The student applies knowledge of printing systems. The student is expected to analyze and summarize the history and evolution of the printing and imaging field.**
- 
- (6) The student applies safety regulations. The student is expected to:**
- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.

---

**(7) The student applies leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
- (B) employ teamwork and conflict-management skills to achieve collective goals;
- (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
- (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
- (E) employ mentoring skills to inspire and teach others.

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**(8) The student applies ethical decision making and understands and complies with laws regarding use of technology in printing. The student is expected to:**

- (A) exhibit ethical conduct;
- (B) apply copyright laws;
- (C) model respect for intellectual property; and
- (D) demonstrate proper etiquette and knowledge of acceptable use policies.

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**(9) The student develops employability characteristics. The student is expected to:**

- (A) participate in training, education, or certification for employment;
- (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples; and
- (E) demonstrate skills in evaluating and comparing employment opportunities.

---

**(10) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to complete work tasks.**

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**(11) The student develops an advanced understanding of printing and imaging. The student is expected to:**

- (A) manage the printing process;
- (B) prepare customer materials for printing;
- (C) explain and apply printing processes related to lithographic, planographic, gravure, intaglio, and screen;
- (D) apply knowledge of inks and ink processes used for various types of printing, including identifying ink types and describing how properties of ink affect coverage, color, and color separation;
- (E) apply knowledge of papers, including weights and finishes used for various types of printing;
- (F) apply offset duplication parts and operation;
- (G) perform set-up for printing a single color job;
- (H) produce a printed single-color job using an offset duplicator; and
- (I) perform cleanup and maintenance of equipment.

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**Practicum in Printing and Imaging Technology**

**(1) The student applies academic knowledge and skills in printing and imaging projects. The student is expected to:**

- (A) apply English language arts knowledge and skills by demonstrating use of content, technical concepts, and vocabulary; using correct grammar, punctuation, and terminology to write and edit documents; and composing and editing copy for a variety of written documents such as brochures, programs, and newsletters; and
- (B) apply mathematics knowledge and skills by identifying whole numbers, decimals, and fractions applied to measurement and scale; demonstrating knowledge of arithmetic operations; using conversion methods such as fractions to decimals and inches to points; and applying measurement to solve problems.

---

**(2) The student implements advanced communications strategies. The student is expected to:**

- (A) adapt language for audience, purpose, situation, and intent such as structure and style;
- (B) organize oral and written information;
- (C) interpret and communicate information, data, and observations;
- (D) present formal and informal presentations;
- (E) apply active listening skills to obtain and clarify information;
- (F) listen to and speak with diverse individuals; and
- (G) exhibit public relations skills to increase internal and external customer/client satisfaction.

---

**(3) The student implements advanced problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**

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**(4) The student implements advanced information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for printing and imaging projects.**

---

**(5) The student implements advanced knowledge of printing systems. The student is expected to analyze and summarize the history and evolution of the printing and imaging field.**

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**(6) The student applies safety regulations. The student is expected to:**

- (A) implement personal and workplace safety rules and regulations; and
  - (B) employ emergency procedures.
- 

**(7) The student implements leadership characteristics to student leadership and professional development activities. The student is expected to:**

- (A) employ leadership skills to accomplish goals and objectives by analyzing the various roles of leaders within organizations, exhibiting problem-solving and management traits, describing effective leadership styles, and participating in civic and community leadership and teamwork opportunities to enhance skills;
  - (B) employ teamwork and conflict-management skills to achieve collective goals;
  - (C) establish and maintain effective working relationships by providing constructive praise and criticism, demonstrating sensitivity to and value for diversity, and managing stress and controlling emotions;
  - (D) conduct and participate in meetings to accomplish work tasks by developing meeting goals, objectives, and agendas; preparing for and conducting meetings to achieve objectives within scheduled time; producing meeting minutes, including decisions and next steps; and using parliamentary procedure, as needed, to conduct meetings; and
  - (E) employ mentoring skills to inspire and teach others.
- 

**(8) The student implements ethical decision making and complies with laws regarding use of technology in printing. The student is expected to:**

- (A) exhibit ethical conduct related to interacting with others such as client confidentiality, privacy of sensitive content, and providing proper credit for ideas;
- (B) discuss and apply copyright laws in relation to fair use and duplication of materials; and
- (C) analyze the impact of the printing industry on society, including concepts related to persuasiveness, marketing, and point of view.

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**(9) The student implements employability characteristics. The student is expected to:**

- (A) identify and participate in training, education, or certification to prepare for employment;
- (B) identify and demonstrate positive work behaviors and personal qualities needed to be employable such as self-discipline, self-worth, positive attitude, integrity, and commitment;
- (C) demonstrate skills related to seeking and applying for employment to find and obtain a desired job, including identifying job opportunities, developing a resumé and letter of application, completing a job application, and demonstrating effective interview skills;
- (D) maintain a career portfolio to document work experiences, licenses, certifications, and work samples;
- (E) demonstrate skills in evaluating and comparing employment opportunities; and
- (F) examine employment opportunities in entrepreneurship.

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**(10) The student implements technical skills for efficiency. The student is expected to employ planning and time-management skills and tools to enhance results and complete work tasks.**

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**(11) The student implements an advanced technical understanding of professional printing and imaging. The student is expected to:**

- (A) manage the printing process;
  - (B) prepare customer documents;
  - (C) use appropriate printing processes;
  - (D) apply binding processes, including cutting, folding, and trimming;
  - (E) calculate paper counts from a stock sheet;
  - (F) demonstrate folding a variety of print pieces, adapting equipment as needed;
  - (G) demonstrate saddle stitch, perfect bind, and flat stitching in various printed materials;
  - (H) demonstrate padding press operations;
  - (I) use appropriate specialty processes;
  - (J) use appropriate embossing, foil stamping, die cutting, and laminating samples;
  - (K) print appropriate paper labels, ink jet labels, and bulk forms;
  - (L) demonstrate knowledge of postal regulations related to packages, contents, sizes, and destinations; and
  - (M) meet customer needs with regard to labeling, packaging, and shipping according to regulatory standards.
-

## Professional Communications

**(1) The student applies English language arts in professional communications projects. The student is expected to:**

- (A) demonstrate use of content, technical concepts, and vocabulary;
  - (B) use correct grammar, punctuation, and terminology to write and edit documents;
  - (C) identify assumptions, purpose, outcomes, solutions, and propaganda techniques;
  - (D) compose and edit copy for a variety of written documents;
  - (E) evaluate oral and written information; and
  - (F) research topics for the preparation of oral and written communications.
- 

**(2) The student applies professional communications strategies. The student is expected to:**

- (A) adapt language for audience, purpose, situation, and intent;
  - (B) organize oral and written information;
  - (C) interpret and communicate information, data, and observations;
  - (D) present formal and informal presentations;
  - (E) apply active listening skills;
  - (F) develop and interpret tables, charts, and figures;
  - (G) listen to and speak with diverse individuals; and
  - (H) exhibit public relations skills.
- 

**(3) The student understands and examines problem-solving methods. The student is expected to employ critical-thinking and interpersonal skills independently and in teams to solve problems.**

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**(4) The student applies information technology applications. The student is expected to use personal information management, email, Internet, writing and publishing, presentation, and spreadsheet or database applications for professional communications projects.**

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**(5) The student understands communications systems. The student is expected to:**

- (A) describe the nature and types of businesses;
  - (B) analyze and summarize the history and evolution of the various related fields of study; and
  - (C) analyze the economic base in order to demonstrate an understanding of the economic factors influencing the industry as a whole.
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**(6) The student applies safety regulations. The student is expected to implement personal and classroom safety rules and regulations.**

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**(7) The student develops leadership characteristics. The student is expected to participate in student leadership and professional development activities.**

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**(8) The student applies ethical decision making and understands and complies with laws regarding use of technology in communications. The student is expected to:**

(A) exhibit ethical conduct;

(B) discuss copyright laws in relation to fair use and duplication of materials; and

(C) analyze the impact of communications on society, including concepts related to persuasiveness, marketing, and point of view.

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**(9) The student applies technical skills for efficiency. The student is expected to employ planning and time-management skills to relate to professional communications.**

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**(10) The student develops an understanding of professional communications through exploration of the career cluster. The student is expected to:**

- (A) develop an understanding of the evolution of the career cluster by:
  - explaining the history and evolution of career cluster fields;
  - defining and using related terminology;
  - analyzing foundation elements and principles of career fields; and
  - analyzing the communicative effects of career fields;
- (B) demonstrate knowledge of various communication processes in professional contexts by:
  - explaining the importance of effective communication skills in professional contexts;
  - identifying the components and functions of the communication process;
  - identifying standards for making appropriate communication choices;
  - identifying the characteristics of oral language;
  - analyzing standards for using informal, standard, and technical language appropriately;
  - identifying types and effects of nonverbal communication;
  - recognizing the importance of effective nonverbal strategies such as a firm handshake, direct eye contact, and appropriate use of space and distance;
  - identifying the components of the listening process;
  - identifying specific kinds of listening such as critical, deliberative, and empathic;
  - recognizing the importance of using accurate and complete information as a basis for making communication decisions;
  - identifying and analyzing ethical and social responsibilities of communicators; and
  - recognizing and analyzing appropriate channels of communication in organizations;
- (C) use appropriate interpersonal communication strategies in professional contexts by:
  - identifying types and purposes of professional communications;
  - employing appropriate verbal, nonverbal, and listening skills;
  - using communication management skills;
  - using professional etiquette and protocol in situations such as making introductions, speaking on the telephone, and offering and receiving criticism;
  - using clear and appropriate communications with others;
  - participating appropriately in conversations;
  - communicating effectively in interviews;
  - identifying and using appropriate strategies for dealing with differences such as gender, ethnicity, and age; and
  - analyzing and evaluating the effectiveness of communications;
- (D) communicate effectively in professional group contexts by:
  - identifying types and purposes of groups;
  - analyzing group dynamics and processes;
  - identifying and analyzing the roles of group members;
  - demonstrating skills for assuming productive roles in groups;
  - using appropriate verbal, nonverbal, and listening strategies;
  - identifying and analyzing leadership styles;
  - using effective communication strategies in leadership roles;
  - using effective communication strategies for solving problems, managing conflicts, and building consensus in groups; and
  - analyzing and evaluating group effectiveness;
- (E) make and evaluate formal and informal professional presentations by:
  - analyzing the audience, occasion, and purpose;

- </li>determining specific topics and purposes for presentations;</li></li></li>researching topics using primary and secondary sources;</li></li></li>using effective strategies to organize presentations;</li></li></li>using information to support points in presentations;</li></li></li>preparing scripts or notes for presentations;</li></li></li>using visual or auditory aids to enhance presentations;</li></li></li>using appropriate techniques to manage communication apprehension, build self-confidence, and gain command of the information;</li></li></li>using effective verbal and nonverbal strategies in presentations;</li></li></li>participating in an informative or persuasive group discussion;</li></li></li>making individual presentations to inform, persuade, or motivate an audience;</li></li></li>participating in question-and-answer sessions following presentations;</li></li></li>applying critical-listening strategies to evaluate presentations; and</li></li></li>evaluating effectiveness of presentations;</li></ol>
- (F) use a variety of strategies to acquire information from electronic resources;
- (G) acquire electronic information in a variety of formats;
- (H) use research skills and electronic communications;
- (I) format digital information for appropriate and effective communication by:<ol type="i"></li>defining the purpose of a product;</li></li>identifying the intended audience;</li></li>using the principles of page design to create a product, including leading, kerning, automatic text flow into linked columns, widows, orphans, and text wrap; and</li></li>creating a master template that includes page specifications and other repetitive tasks;</li></ol>
- (J) apply desktop publishing to create products by:<ol type="i"></li>using word processing, graphics, or drawing programs;</li></li>applying design elements such as text, graphics, headlines, use of color, and white space;</li></li>applying typography concepts, including font, size, and style;</li></li>applying graphic design concepts such as contrast, alignment, repetition, and proximity;</li></li>editing products; and</li></li>developing and referencing technical documentation; and</li></ol>
- (K) deliver digital products in a variety of appropriate media.