Mississippi Curriculum Framework
GRAPHIC DESIGN TECHNOLOGY

Graphic Design Technology - (Program CIP: 50.0409 – Graphic Design)

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Adoption of National Certification Standards

Upon further research, there are no national certification standards that are available for adoption at this time. The Office of Curriculum and Instruction will continue working with industry members to ensure the curriculum document is rigorous and meets industry standards.

RESEARCH ABSTRACT

The curriculum framework in this document reflects the changes in the workplace and a number of other factors that impact local vocational–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

REVISION HISTORY

2010-Research & Curriculum Unit, Mississippi State University
2016-Office of Curriculum & Instruction, Mississippi Community College Board
2019-Office of Curriculum & Instruction, Mississippi Community College Board
2024-Office of Curriculum & Instruction, Mississippi Community College Board

Program Description

The Graphic Design Technology curriculum is a two-year program of study designed to prepare the student for entry-level employment and advancement in the field of graphic design, commercial art, media art, and web graphics. Students receive instruction in the design and execution of publications, packaging, web graphics, illustrations, rendering, logo design, and design principles necessary to produce designs for printed ads, books, posters, billboards, catalogs, brochures, and other forms of visual communications. Upon completing this program students have the option to becoming an in-house designer, designer at an advertising agency, T-shirt designer, illustrator, freelance designer, small-business owner, and/or signage designer or designing for printing companies. Opportunities for students with expertise in graphic design also include government agencies, corporations, and entrepreneurship.

Suggested Course Sequence- Graphic Design Technology

Accelerated Pathway Credential

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
CAT 1213	Fundamentals of Graphic Computers	3	1	4	75	15	60	
CAT 1113	Graphic Design and Production I	3	2	2	60	30	30	
CAT 1143	Typography	3	2	2	60	30	30	
	Electives	6						
	TOTAL	**15**						

Career Certificate Required Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
CAT 1213	Fundamentals of Graphic Computers	3	1	4	75	15	60	
CAT 1153 OR ART 1313	Drawing for Designers I or Drawing I	3	2	2	60	30	30	
CAT 1113	Graphic Design and Production I	3	2	2	60	30	30	
CAT 1143	Typography	3	2	2	60	30	30	
CAT 1323 or MMT 1323	Advertising Prin. for Digital Design or Advertising	3	2	2	60	30	30	
CAT 1123	Graphic Design and Production II	3	2	2	60	30	30	
	Instructor Approved Technical Electives per Local Community College	12						
	TOTAL	**30**						

Technical Certificate Required Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
CAT 2313	Basic Advertising Design	3	1	4	75	15	60	
CAT 2323	Advanced Advertising Design	3	1	4	75	15	60	
CAT 2333	Practical Advertising Techniques	3	2	2	60	30	30	
CAT 2133	Graphic Design Studio	3	1	4	75	15	60	
	Instructor Approved Technical Electives per Local Community College	3						
	TOTAL	**15**						

General Education Core Courses

To receive the Associate of Applied Science degree, a student must complete all of the required coursework found in the Career Certificate option, Technical certificate option, and a minimum of 15 semester hours of General Education core. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester or provided primarily within the last semester. Each community college will specify the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science degree at their college. The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) Section 9 Standard 3 of the *Principles of Accreditation: Foundations for Quality Enhancement[1]* describes the general education core.

Section 9 Standard 3:
3.   The institution requires the successful completion of a general education component at the undergraduate level that
a) is based on a coherent rationale.
b) is a substantial component of each undergraduate degree program. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours of the equivalent; for baccalaureate programs, a minimum of 30 semester hours or the equivalent.
c) ensures breadth of knowledge. These credit hours include at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. These courses do not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession.

General Education Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown			Contact Hour Breakdown		Certification Information
			Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
	Humanities/Fine Arts	3						
	Social/Behavioral Sciences	3						
	Math/Science	3						
	Academic electives	6						
	TOTAL	**15**						

[1] Southern Association of Colleges and Schools Commission on Colleges. (2017). *The Principles of Accreditation: Foundations for Quality Enhancement*. Retrieved from http://www.sacscoc.org/2017ProposedPrinc/Proposed%20Principles%20Adopted%20by%20BOT.pdf

Electives – Digital Arts and Design Technology

Course Number	Course Name	Semester Credit Hours	SCH Breakdown			Total Contact Hours	Contact Hour Breakdown		
			Lecture	Lab	Clinical/ Intern		Lecture	Lab	Clinical/ Intern
ART 1313	Drawing I	3							
ART 1323	Drawing II	3							
ART 1433	Design I	3							
ART 1443	Design II	3							
BOT 1273	Introduction to Microsoft® Office®	3	2	2		60	30	30	
BOT 1213	Professional Development	3	2	2		60	30	30	
BOT 1763 OR BOT 1713 AND BOT 2813	Communication Essentials OR Mechanics of Communication AND Business Communication	3 or 6	2	2		60			
CAT 1113	Graphic Design and Production I	3	2	2		60			
CAT 1123	Graphic Design and Production II	3	2	2		60			
CAT 1143	Typography	3	2	2		60	30	30	
CAT 1173	Typography II	3	2	2		60	30	30	
CAT 1223	Web Design Applications	3	2	2		60			
CAT 1163	Drawing for Designers II	3	2	2		60	30	30	
CAT 1213	Fundamentals of Graphic Computers	3	1	4		75	15	60	
CAT 1323	Advertising Principles for Digital Design	3	2	2		60	30	30	
CAT 2133	Graphic Design Studio	3	1	4		75	15	60	
CAT 2223	Basic Digital Photography	3	2	2		60	30	30	
CAT 2263	Web Graphic Production	3	1	4		75	15	60	
CAT 2313	Basic Advertising Design	3	1	4		75	15	60	
CAT 2323	Advanced Advertising Design	3	1	4		75	15	60	
CAT 2333	Practical Advertising Techniques	3	2	2		60	30	30	
CAT 2413	Rendering Techniques and Visual Production	3		6		90		90	
CAT 2824	Extended Reality (XR) 3D Design	4	3	2		75			
CAT 2834	Advanced Extended Reality (XR) 3D Design	4	3	2		75			
CAT 291(1-6)	Special Project in Graphic Design Technology	1-6	2-12			30-180		30-180	
CAT 292(1-6)	Supervised Work Experience in Graphic Design Technology	1-6	1-6			45-270			45-270
IST 1134	Fundamentals of Database Management	4	2	4		75	15	60	
IST 1154	Web and Programming Concepts	3-4	2	2		60	30	30	
IST 1163	Concepts of Database Design	3	2	2		60	30	30	
IST 1244	Windows Server	4	2	4		75	15	60	
IST 1254	Linux Server	4	2	4		75	15	60	
MMT 1323	Advertising	3	2	2		60	30	30	
MMT 2313	E-Commerce Marketing	3	3			45	45		
MMT 2513	Entrepreneurship	3	3			45	45		

WBL (1-6)	Work Based Learning	1-6			3-18	45-270			45-270
WDT 1123	Web Development Concepts	3-4	2	2		60	30	30	
WDT 1314	Web Programming I	4	2	4		90	30	60	
WDT 1414	Web Design Applications I	4	2	4		90	30	60	
WDT 2214	Web Programming II	4	2	4		90	30	60	
WDT 2224	Web Programming III	4	2	4		90	30	60	
WDT 2263	Web Graphic Production	3	1	4		75	15	60	
WDT 2324	XML Programming	4	2	4		90	30	60	
WDT 2414	Game Programming	4	2	4		90	30	60	
WDT 2614	Web Project Management	4	2	4		90	30	60	
WDT 2723	E-Commerce Strategies	3	2	2		60	30	30	
WDT 2823	Web Server	4	2	4		90	30	60	
WDT 291(1-6)	Special Project in Web Development Technology	1-6		2-12		30-180		30-180	
	Other approved elective courses per local community college								

COURSES

Course Number and Name: CAT 1113 Graphic Design and Production I

Description: An introduction to the skills of design, typography, and the fundamentals needed of the graphic artist. The course will provide selected experiences involving design, simple design, printing processes, industry specifications, and industry production formats for mass distribution.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Demonstrate proper use of tools and equipment used in the graphic design field.
   a. Identify and describe tools and software needed for graphic design.
   b. Obtain and utilize tools needed for graphic design.

2. Demonstrate principles of typography.
   a. Identify and describe characteristics of type.
   b. Utilize proper design skills related to type.

3. Demonstrate proper design and production techniques.
   a. Exhibit skills in measuring, according to the printers' measurement system.
   b. Create a layout utilizing the design stages to include thumbnails, roughs, and completed comprehensive.
   c. Produce design projects.
   d. Demonstrate basic design and production skills.

4. Relate the printing process to design techniques.
   a. Identify and describe types of printing techniques and terminology.
   b. Design and apply various printing requirements to the design process.

Course Number and Name: CAT 1123 Graphic Design and Production II

Description: A continuation of Graphic Design and Production I with concentration on color printing, industry terminology and standards, corporate identity, and branding with continued emphasis on design, typography, and balance. The course will utilize current computer techniques.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Identify and describe process color printing techniques.
    a. Discuss and describe digital vs traditional four color printing process.
    b. Discuss and describe design requirements for the four color process.

2. Identify and describe industry terminology and brand management.
    a. Discuss and describe standards and terms used in the industry.

3. Analyze corporate identity and branding techniques.
    a. Investigate and formulate conceptual ideas for branding.
    b. Design and produce a series of logo types.

4. Develop social media marketing.
    a. Create content for social media.
    b. Identify some platforms and channels.
    c. Correlate social media with search engine optimization.

Course Number and Name: CAT 1143 Typography

Description: Develop the basic understanding of type, fonts and letter forms within the context of printed and web applications. This course compares and contrast both historical and modern approaches to typography and the basic applications, and software implementations within the graphics industry.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Recognize type as an aesthetic form.
   a. Apply the appropriate word spacing in applications using serif, sans-serif, modern, and transitional fonts.
   b. Illustrate letter form compositions examining form and counter form.

2. Relate typographic form to meaning.
   a. Combine letter forms into a single visual form.
   b. Use compositions employing the visual properties of type and space to express the meaning of a word.

3. Discuss and describe the terminology and historical development of typography.
   a. Identify and describe typographic terminology.
   b. Explain and trace the development of the written word.

Course Number and Name: CAT 1153 Drawing for Design I

Description: This course is designed to introduce the student to the basics of beginning drawing as an aesthetic form – as well as – ideation and concept development in relationship to creating graphic communications. This course will utilize a variety of mediums including thumbnail sketches, roughs, ideation and the exploration of how drawing relates to concept and completion of design tasks. The student will become aware of his or her own style and personality of his or her work while referencing other master artists.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Develop a drawing vocabulary and explore how it relates to solving problems in graphic design.
   a. Utilize the perception of edges, space, relationships, lights, and shadows.
   b. Compose gesture and contour line drawing renderings.
   c. Apply the gestalt principles to drawing.
   d. Use a variety of asymmetrical and symmetrical compositional structures in a drawing.
   e. Research historical artists while looking for contemporary solutions to problem solving.
   f. Explore different mind mapping processes to better understand and develop concepts through sketching.

2. Compose and transform simple line drawing renderings into conceptual ideas through the transformation of letters, shapes and symbols to communicate thoughts.
   a. Explore different tools for drawing renderings.
   b. Compose gesture and contour line drawing renderings.
   c. Introduce grid layout concepts and hierarchy in communications.
   d. Articulate concepts into a visual form.
   e. Discuss and develop an understanding of shapes, spatial relationships, proportion and the basics of composition as they relate to various layouts and how they solve design problems.

3. Develop a sketchbook.
   a. Discuss sketchbook and inspiration collection as one of the most important tools used in design.
   b. Utilize sketchbook to work through concepts for class and homework assignments.
   c. Develop a personal sketchbook as a visual journal that documents the development, inspiration and evolution of drawing and design projects.
   d. Use a sketchbook as a means of documenting experiences, inspirations and subjects/objects of artistic interest,
   e. Gain understanding of the process development a designer uses to create conceptual ideas.

Course Number and Name: CAT 1163 Drawing for Designers II

Description: This course introduces color theory and media, continues to build observational skills, and pushes creative skills by exploring dynamic composition as it affects content in a digital setting. Building on previous computer coursework this class will explore creating original digital art and manipulation of stock for various communications pieces. The course will explore vector and raster imagery for print, animation and web applications, as well as, various other digital media.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Understand the use of color application in drawings produced for publication and private sector.
   a. Produce four color pencil drawings to be translated into various digital formats.
   b. Gain understanding and practical applications of color theory.
   c. Produce four color computer drawings for both vector and raster images for print and web.

2. Develop an understanding of compositional form and how it translates to digital applications.
   a. Discuss, explore and implement various techniques and applications in digital drawing.
   b. Create original digital art and apply to various advertising and communications pieces.
   c. Develop processes for creating original art from both sketch and the manipulation of stock.

Course Number and Name: CAT 1173 Typography II

Description: A continuation of the exploration of typography as utilized in modern design. This is an in-depth exploration of the use of type in relation to understanding and utilizing advanced design and layout techniques within print and digital applications.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Continue to explore the core principles of typography further developing critical theory, critique, technology and craftsmanship.

2. Solve communication problems, including an understanding of the principles of visual organization, composition, Information hierarchy, alignment, symbolic representation, typography, aesthetics, and the construction of meaningful messages.

3. Solve specific design problems that include setting and using type effectively in layout applications, addressing form and counter form issues, hierarchy, type as a conduit for meaning and content as well as other issues related to visual problem solving through typographic forms.

4. Apply grid systems to complex multipage layouts.

Course Number and Name: CAT 1213 Fundamentals of Graphic Computers

Description: An introduction to graphic interface computers related to the graphic design industry, utilizing current software and related hardware emphasizing industry specifications, print production, and digital image manipulation.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Define and use computer terminology related to the graphic design industry.
   a. Define and associate common operating procedures and terms.
   b. Apply computer terminology to graphic applications.

2. Define and use graphic related computer hardware and peripheral equipment.
   a. Define and use graphic computer equipment used for input.
   b. Define and use graphic computer equipment used for output.
   c. Define and use graphic computer equipment used for processing.

3. Define and use software related to the graphic industry.
   a. Define the software related to the graphic industry.
   b. Utilize current graphic software.

Course Number and Name   CAT 1223 Web Design Applications

Description: Discovery and application of web development software and applications. Four specific areas will be covered:(1) Introduction to coding languages HTML5 and CSS (2) Commercial web design applications, ex. Adobe Dreamweaver and XD (3) Online cloud-based web development providers, ex. Squarespace and WIX (4) Open source web development tools, ex. WordPress

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:
1. Explore and use coding language HTML5 and CSS.
2. Utilize commercial web design applications, ex. Adobe Dreamweaver and XD.
3. Utilize online cloud-based web development providers, ex. WIX and Squarespace.
4. Utilize open source web development tools, ex. Word Press

Course Number and Name: CAT 1323 Advertising Principles for Digital Design

Description: Introduction to advertising techniques, marketing concepts, careers, industry requirements, and regulations specifically for students majoring in visual technology programs.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Analyze the role of creative media and relationship to marketing, promoting, advertising, publicity, public relations, product placement and public perception.

2. Compare the objectives of advertising-related service providers to the objectives of
   a. Agencies
   b. Advertisers
   c. Clients

3. Analyze and evaluate promotional practices and requirements for the production and distribution of creative media.
   a. Print media
   b. Broadcast media
   c. Internet/Mobile
   d. Direct response
   e. Out-of-home
   f. Packaging as promotional tool

4. Analyze and evaluate the social, legal and regulatory constraints of creative media and intellectual property

Course Number and Name: CAT 2133 Graphic Design Studio

Description: A concentrated study in graphic design specifically related to regional industry needs. Emphasis will be placed on projects according to industry needs.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Research and develop projects that are a culmination of training specifically related to the graphic design industry.
   a. Investigate and formulate conceptual ideas for industry needs.
   b. Employ computer-generated graphics to create professional artwork to meet industry needs.
   c. Manipulate current software to generate graphics to meet industry needs.

Course Number and Name: CAT 2223 Basic Digital Photography

Description: An introduction to photography with emphasis on the basic digital device, exposure, composition, and lighting.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60
4	2	4	90

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Discuss describe, and demonstrate the operation of current device technologies.

2. Discuss, describe, and demonstrate the basic operation of creating a digital image.

3. Demonstrate the operation of a digital device.
   a. Differentiate high quality from poor quality for end user.
   b. Discuss, calculate, and demonstrate depth of field.

4. Discuss, describe, and demonstrate presentation techniques.
   a. Discuss, describe, and demonstrate presentation techniques.
   b. Incorporate basic composition techniques.

Course Number and Name: CAT 2263 Web Graphic Production

Description: An in-depth study of producing and utilizing graphic elements designed for Internet or web application. Emphasis is placed equally on aesthetics, technical requirements, and principles of interactive design. The course will provide a concentrated study related to color management, typography, graphic development and manipulation, digital imaging, and creating dynamic Web experiences. The focus is on the production and manipulation of individual elements and is recommended as a supplement to a web design application course or previous experience.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Research and analyze current web content.
    a. Evaluate, discuss, and explain aesthetics, legibility, and relevance to designing web graphics.
    b. Conduct technical evaluations, and explain download times, transmission, and processing speeds.
    c. Research and discuss how designing for the Web compares to designing for print reproduction.
    d. Research and discuss the use of royalty-free stock art/photos, creating original graphic content, creative ownership, copyright protection, trademarks, and public domain materials.
    e. Research and then compare content and distribution regulations of Web versus printed materials.
    f. Use and understand Adobe Acrobat.

2. Use digital image capture, management, and manipulation.
    a. Discuss and configure resolution requirements for the Web.
    b. Discuss graphic resolutions for the Web compared to print requirements.

3. Discuss color management.
    a. Research and discuss hexadecimal and RGB color values.
    b. Research and discuss effective and ineffective color combinations for the Web.

4. Discuss typography for the web.
    a. Research and discuss font management.
    b. Control text size, spacing, leading, kerning, alignment, and tracking.
    c. Compare aliasing to anti-aliasing.

5. Develop static web graphic/visual.
    a. Discuss, compare, and understand compression techniques.

6. Develop motion or interactive graphic/visual content.
    a. Record or create audio that accompanies an animated Web graphic.
    b. Create an original animated Web graphic representing a realistic human being in some form of activity.

Course Number and Name: CAT 2313 Basic Advertising Design

Description: Concepts and methodology related to the graphic design industry utilizing current software and related hardware.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Utilize creative solutions in problem solving for graphic design work.
   a. Plan unique concepts to advertise an item, a service, or an idea.
   b. Create unique concepts to advertise an item, a service, or an idea.

2. Describe, apply, and utilize computer equipment to produce graphic design projects.
   a. Produce graphic design projects using current computer equipment and peripherals that reflect equipment used in industry.
   b. Produce graphic design projects using current related software used in industry.

Course Number and Name: CAT 2323 Advanced Advertising Design

Description: This course has an emphasis on graphic computers to develop and produce advanced graphic design projects. This course utilizes equipment and software used in industry.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Utilize creative solutions in solving problems encountered in industry.
    a. Plan unique concepts to advertise an item, a service, or an idea.
    b. Create unique concepts to advertise an item, a service, or an idea.

2. Describe, apply, and utilize computer equipment to produce advanced graphic design projects.
    a. Produce advanced graphic design projects using current computer equipment and peripherals that reflect equipment used in industry.
    b. Produce advanced graphic design projects using current related software used in industry.

Course Number and Name: CAT 2333 Practical Advertising Techniques

Description: Performance skills needed for productive employment in the graphic design field.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Demonstrate performance skills needed for productive employment.
    a. Develop creative, original ideas, and take them from concept to completion.
    b. Participate in a mock job interview, and critique according to such areas as appearance, communication skills, and so forth.
    c. Master an effective schedule for meeting deadlines in the graphic arts industry.

2. Design a professional résumé, and compile a portfolio.
    a. Complete a professional résumé, cover letter, self-promotion or identity package, and thank-you letter.
    b. Generate a digital and print based portfolio.
    c. Complete an exit interview and portfolio review.

3. Explore workplace ethics
    a. Distinguish copyright laws.
    b. Identify intellectual property rights.
    c. Understand plagiarism and its implications.

Course Number and Name   CAT 2413 Rendering Techniques and Visual Production

Description: A study of various illustration and rendering techniques. The student will learn professional methods of illustration and visual production for mass distribution using electronic, mechanical, and traditional art techniques.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
3	1	4	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Distinguish between the various applications of rendering and illustration media.
   a. Distinguish between basic illustrations materials/media.
   b. Demonstrate the proper application of basic illustration materials/media.

2. Create visuals to solve communication problems using words and images suitable for electronic distribution and graphic reproduction.

Course Number and Name: CAT2824 Extended Reality (XR) 3D Design

Description: This course provides an instruction to 3D modeling using industry software and pipeline workflows with an emphasis on artistic development and technical implementation of animation of animation, modeling, texturing, lighting, and rendering.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
4	3	2	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Demonstrate an understanding of 3D modeling software and how it applies to the graphic design and new media industries.
    a. Discuss types of visualization software and their specific uses in the media industries.
    b. Identify fundamental terminology for building and designing 3D models.

2. Design a 3D model through established development pipelines.
    a. Create 3D models using visualizing software.
    b. Understand object components and their importance to 3D Modeling.
    c. Utilize UV mapping and lighting to create 3D scenes.
    d. Review camera and rendering options.

Course Number and Name: CAT2834   Advanced Extended Reality (XR) 3D Design

Description: This course is designed to introduce students to extended reality development as it relates to the graphic and game design industries. This course will provide students with a working knowledge of the tools, skills, and workflows necessary to develop extended reality experiences.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
4	3	2	75

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Explain the history of Extended Reality (XR), current trends and opportunities for extended reality development within the gaming and design industry.

2. Explore options within a game engine for extended reality development.
    a. Identify key components and tools integral to extended reality productions.
    b. Discuss the tools available for content creation within XR platforms.
    c. Discuss the resources available for learning, inspiration, and asset acquisition.

3. Explain the elements and life cycle of extended reality design experience.

4. Demonstrate an understanding of key design components by creating an extended reality experience within a game engine.
    a. Understand project anatomy and creation.
    b. Demonstrate ability to create and work with assets within a project.
    c. Utilize 3D modeling, UV mapping, lighting and rendering techniques to create 3D worlds.
    d. Build landscapes and worlds.
    e. Demonstrate knowledge of special audio creation, usage and asset management.
    f. Display knowledge of animation and particle effects creation.

Course Number and Name: CAT 291(1-6) Special Project in Graphic Design Technology

Description: Practical applications of skills and knowledge gained in other Graphic Design Technology courses. The instructor works closely with the student to ensure that selection of a special project enhances the student's learning experiences.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
1		2	30
2		4	60
3		6	90
4		8	120
5		10	150
6		12	180

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Research and develop a special project.

   a. Research and produce special project in cooperation with the instructor that details the work to be accomplished, a schedule for delivery, and specific skills/tasks to be mastered.

2. Follow guidelines for the special project.

   a. Complete all required activities.

   b. Adhere to all written and oral instructions for the special project.

Course Number and Name: CAT 292(1-6) Supervised Work Experience in Graphic Design Technology

Description: This course is a cooperative program between industry and education and is designed to integrate the student's technical studies with industrial experience. Variable credit is awarded on the basis of one semester hour per 45 industrial and classroom contact hours.

Hour Breakdown:

Semester Hours	Lecture	Lab	Clinical/Externship	Contact Hours
1			3	45
2			6	90
3			9	135
4			12	180
5			15	225
6			18	270

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Apply technical skills needed to be a viable member of the workforce.
   a. Prepare a description of technical skills to be developed in the supervised work experience.
   b. Develop technical skills needed to be a viable member of the workforce.

2. Apply skills developed in other program area courses.
   a. Perform skills developed in other program area courses.

3. Apply human relationship skills.
   a. Use proactive human relationship skills in the supervised work experience.

4. Apply and practice positive work habits and responsibilities.
   a. Perform assignments to develop work habits and responsibilities.

5. Assess accomplishment of objectives.
   a. Prepare daily written assessment of accomplishment of objectives.
   b. Present weekly written reports to instructor in activities performed and objectives accomplished.

6. Utilize a set of written guidelines for the supervised work experience.
   a. Develop and follow a set of written guidelines for the supervised work experience.

Course Number and Name: CAT 293(1-6) Special Project in Graphic Design Technology II

Description: Practical applications of skills and knowledge gained in other Graphic Design Technology courses. The instructor works closely with the student to ensure that selection of a special project enhances the student's learning experiences.

Hour Breakdown:

Semester Hours	Lecture	Lab	Contact Hours
1		2	30
2		4	60
3		6	90
4		8	120
5		10	150
6		12	180

Prerequisite: Instructor Approved

Student Learning Objectives:

1. Research and develop a special project.
   a. Research and produce special project in cooperation with the instructor that details the work to be accomplished, a schedule for delivery, and specific skills/tasks to be mastered.

2. Follow guidelines for the special project.
   a. Complete all required activities.
   b. Adhere to all written and oral instructions for the special project.

Appendix A: Recommended Tools and Equipment

CAPITALIZED ITEMS

1. Flat files (2)
2. Large format plotter with RIP software (1)
3. Color laser printer (2 - one 13x19, one 11x17)
4. Multi-function full color printer; duplex: saddle stitch preferred with bindery 12X18 capable
5. Matt cutter (1)
6. Paper cutter (1)
7. Digital video camera and hard case (1 per lab)
8. Video editing software and editing system (1 per lab)
9. Digital photography lighting system (1 per lab)
10. Digitizing Drawing tablets (1 per student)
11. Industry required software
12. Ergonomic student desk and chairs (1 per student)
13. Vinyl cutter (1 per lab)
14. External file server
15. Dye-Sublimation Printer
16. H2o Laser Engraver

NON-CAPITALIZED ITEMS

1. Design tables (1 per student)
2. Graphic interface computer with industry standard graphic monitor (1 per student)
3. Flatbed color scanner (2 per lab)
4. External storage device (1 per lab)
5. Multi-function, wide format scanner/printer
6. Black and white laser printer (2)
7. Light tables/box (4)
8. Spray booth (1)
9. Copier
10. Tripod (1)
11. Student lockers (1 per student)
12. Educational tutorial subscriptions
13. Screen printing equipment
14. Heat Press

Recommended Instructional Aids and Resources
It is recommended that instructors have access to the following items:

1. Universal power supply (1 per lab)
2. Computer, graphic interface (1)
3. Large color graphic monitors (2)
4. Audio recording equipment (1)
5. Printer (1)
6. Digital projector with an appropriate resolution (1)
7. Interactive board (1)
8. Teacher work station (1)
9. Remote desktop (1 per lab)
10. Subscription to a stock photography
11. Tablet
12. 3D Printing Machine

Appendix B: Curriculum Definitions and Terms

- Course Name – A common name that will be used by all community colleges in reporting students

- Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students

- Classification – Courses may be classified as the following:
    - Career Certificate Required Course – A required course for all students completing a career certificate.
    - Technical Certificate Required Course – A required course for all students completing a technical certificate.
    - Technical Elective – Elective courses that are available for colleges to offer to students.

- Description – A short narrative that includes the major purpose(s) of the course

- Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course

- Corequisites – A listing of courses that may be taken while enrolled in the course

- Student Learning Outcomes – A listing of the student outcomes (major concepts and performances) that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:

- The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:
    - Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
    - Activities that develop a higher level of mastery on the existing competencies and suggested objectives
    - Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
    - Activities that include integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
    - Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas

- Sequencing of the course within a program is left to the discretion of the local college. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors. Programs that offer an Associate of Applied Science Degree must include all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college.

- In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

- Adding new student learning outcomes to complement the existing competencies and suggested objectives in the program framework
- Revising or extending the student learning outcomes
- Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)

Appendix C: Course Crosswalk

<table>
<tr><td colspan="6">Course Crosswalk
Digital Arts and Design</td></tr>
<tr><td colspan="6">Note: Courses that have been added or changed in the 2019 curriculum are highlighted.</td></tr>
<tr><td colspan="3">Ex</td><td colspan="3">Revise</td></tr>
<tr><td colspan="3">2016 MS Curriculum Framework</td><td colspan="3">2019 MS Curriculum Framework</td></tr>
<tr><td>Course Number</td><td>Course Title</td><td>Hours</td><td>Course Number</td><td>Course Title</td><td>Hours</td></tr>
<tr><td>CAT 1113</td><td>Graphic Design and</td><td>3</td><td>CAT 1113</td><td>Graphic Design and Production I</td><td>3</td></tr>
<tr><td>CAT 1123</td><td>Graphic Design and</td><td>3</td><td>CAT 1123</td><td>Graphic Design and Production II</td><td>3</td></tr>
<tr><td>CAT 1143</td><td>Typography</td><td>3</td><td>CAT 1143</td><td>Typography</td><td>3</td></tr>
<tr><td>CAT 1153</td><td>Drawing for Designers I</td><td>3</td><td>CAT 1153</td><td>Drawing for Designers I</td><td>3</td></tr>
<tr><td>CAT 1163</td><td>Drawing for Designers II</td><td>3</td><td>CAT 1163</td><td>Drawing for Designers II</td><td>3</td></tr>
<tr><td></td><td></td><td></td><td>CAT 1173</td><td>Web Design Applications</td><td>3</td></tr>
<tr><td>CAT 1213</td><td>Fundamentals of Graphic Computers</td><td>3</td><td>CAT 1213</td><td>Fundamentals of Graphic Computers</td><td>3</td></tr>
<tr><td></td><td></td><td></td><td>CAT1223</td><td>Typography II</td><td>3</td></tr>
<tr><td>CAT 1323</td><td>Advertising Prin. for Digital</td><td>3</td><td>CAT 1323</td><td>Advertising Prin. for Digital Design</td><td>3</td></tr>
<tr><td>CAT 2133</td><td>Graphic Design Studio</td><td>3</td><td>CAT 2133</td><td>Graphic Design Studio</td><td>3</td></tr>
<tr><td>CAT 2223</td><td>Basic Photography</td><td>3</td><td>CAT 2223</td><td>Basic Photography</td><td>3</td></tr>
<tr><td>CAT 2263</td><td>Web Graphic Production</td><td>3</td><td>CAT 2263</td><td>Web Graphic Production</td><td>3</td></tr>
<tr><td>CAT 2313</td><td>Basic Advertising Design</td><td>3</td><td>CAT 2313</td><td>Basic Advertising Design</td><td>3</td></tr>
<tr><td>CAT 2323</td><td>Advanced Advertising Design</td><td>3</td><td>CAT 2323</td><td>Advanced Advertising Design</td><td>3</td></tr>
<tr><td>CAT 2334</td><td>Practical Advertising</td><td>4</td><td>CAT 2333</td><td>Practical Advertising Techniques</td><td>3</td></tr>
<tr><td>CAT 2413</td><td>Rendering Techniques and Visual</td><td>3</td><td>CAT 2413</td><td>Rendering Techniques and Visual Production</td><td>3</td></tr>
<tr><td>CAT 291(1-6)</td><td>Special Project in Graphic Design</td><td>1-6</td><td>CAT 291(1-6)</td><td>Special Project in Graphic Design Technology</td><td>1-6</td></tr>
<tr><td>CAT 292(1-6)</td><td>Supervised Work Experience in</td><td>1-6</td><td>CAT 292(1-6)</td><td>Supervised Work Experience in Graphic Design Technology</td><td>1-6</td></tr>
<tr><td>WDT 1123</td><td>Web Development Concepts</td><td>3</td><td>WDT 1123</td><td>Web Development Concepts</td><td>3</td></tr>
<tr><td>WDT 1314</td><td>Web Programming I</td><td>4</td><td>WDT 1314</td><td>Web Programming I</td><td>4</td></tr>
<tr><td>WDT 1414</td><td>Web Design Applications</td><td>4</td><td>WDT 1414</td><td>Web Design Applications</td><td>4</td></tr>
<tr><td>WDT 1434</td><td>Web Design Applications II</td><td>4</td><td>WDT 1434</td><td>Web Design Applications II</td><td>4</td></tr>
<tr><td>WDT 2214</td><td>Web Programming II</td><td>4</td><td>WDT 2214</td><td>Web Programming II</td><td>4</td></tr>
<tr><td>WDT 2224</td><td>Web Programming III</td><td>4</td><td>WDT 2224</td><td>Web Programming III</td><td>4</td></tr>
<tr><td>WDT 2263</td><td>Web Graphic Production</td><td>3</td><td>WDT 2263</td><td>Web Graphic Production</td><td>3</td></tr>
<tr><td>WDT 2324</td><td>XML Programming</td><td>4</td><td>WDT 2324</td><td>XML Programming</td><td>4</td></tr>
<tr><td>WDT 2414</td><td>Game Programming</td><td>4</td><td>WDT 2414</td><td>Game Programming</td><td>4</td></tr>
<tr><td>WDT 2614</td><td>Web Project Management</td><td>4</td><td>WDT 2614</td><td>Web Project Management</td><td>4</td></tr>
<tr><td>WDT 2723</td><td>E-Commerce Strategies</td><td>3</td><td>WDT 2723</td><td>E-Commerce Strategies</td><td>3</td></tr>
<tr><td>WDT 2823</td><td>Web Server</td><td>4</td><td>WDT 2823</td><td>Web Server</td><td>4</td></tr>
<tr><td>WDT 291(1-6)</td><td>Special Project in Web Development Technology</td><td>1-6</td><td>WDT 291(1-6)</td><td>Special Project in Web Development Technology</td><td>1-6</td></tr>
<tr><td></td><td></td><td></td><td></td><td>*WDT has been moved to a separate curriculum</td><td></td></tr>
</table>

Course Crosswalk Digital Arts and Design Technology					
Note: Courses that have been added or changed in the 2016 curriculum are highlighted.					
Existing			Revised		
2010 MS Curriculum Framework			2016 MS Curriculum Framework		
Course Number	Course Title	Hours	Course Number	Course Title	Hours
CAT 1113	Graphic Design and Production I	3	CAT 1113	Graphic Design and Production I	3
CAT 1123	Graphic Design and Production II	3	CAT 1123	Graphic Design and Production II	3
CAT 1133	History of Graphic Design	3			
CAT 1143	Typography	3	CAT 1143	Typography	3
CAT 1153	Drawing for Designers I	3	CAT 1153	Drawing for Designers I	3
CAT 1163	Drawing for Designers II	3	CAT 1163	Drawing for Designers II	3
CAT 1213	Fundamentals of Graphic Computers	3	CAT 1213	Fundamentals of Graphic Computers	3
CAT 1323	Advertising Prin. for Digital Design	3	CAT 1323	Advertising Prin. for Digital Design	3
CAT 2133	Graphic Design Studio	3	CAT 2133	Graphic Design Studio	3
CAT 2223	Basic Photography	3	CAT 2223	Basic Photography	3
CAT 2263	Web Graphic Production	3	CAT 2263	Web Graphic Production	3
CAT 2313	Basic Advertising Design	3	CAT 2313	Basic Advertising Design	3
CAT 2323	Advanced Advertising Design	3	CAT 2323	Advanced Advertising Design	3
CAT 2334	Practical Advertising Techniques	3	CAT 2334	Practical Advertising Techniques	3
CAT 2413	Rendering Techniques and Visual Production	3	CAT 2413	Rendering Techniques and Visual Production	3
CAT 291(1-6)	Special Project in Graphic Design Technology	1-6	CAT 291(1-6)	Special Project in Graphic Design Technology	1-6
CAT 292(1-6)	Supervised Work Experience in Graphic Design Technology	1-6	CAT 292(1-6)	Supervised Work Experience in Graphic Design Technology	1-6
WDT 1123	Web Development Concepts	3	WDT 1123	Web Development Concepts	3
WDT 1314	Web Programming I	4	WDT 1314	Web Programming I	4
WDT 1414	Web Design Applications	4	WDT 1414	Web Design Applications	4
WDT 1434	Web Design Applications II	4	WDT 1434	Web Design Applications II	4
WDT 2214	Web Programming II	4	WDT 2214	Web Programming II	4
WDT 2224	Web Programming III	4	WDT 2224	Web Programming III	4
WDT 2263	Web Graphic Production	3	WDT 2263	Web Graphic Production	3
WDT 2324	XML Programming	4	WDT 2324	XML Programming	4
WDT 2414	Flash Game Programming	4	WDT 2414	Game Programming	4
WDT 2614	Web Project Management	4	WDT 2614	Web Project Management	4
WDT 2723	E-Commerce Strategies	3	WDT 2723	E-Commerce Strategies	3
WDT 2823	Web Server	4	WDT 2823	Web Server	4
WDT 291(1-6)	Special Project in Web Development Technology	1-6	WDT 291(1-6)	Special Project in Web Development Technology	1-6

Course Crosswalk
Digital Arts and Design

Note: Courses that have been added or changed in the 2019 curriculum are highlighted.

	Ex			Revise	
	2019 MS Curriculum Framework			**2024 MS Curriculum Framework**	
Course Number	**Course Title**	**Hours**	**Course Number**	**Course Title**	**Hours**
CAT 1113	Graphic Design and	3	CAT 1113	Graphic Design and Production I	3
CAT 1123	Graphic Design and	3	CAT 1123	Graphic Design and Production II	3
CAT 1143	Typography	3	CAT 1143	Typography	3
CAT 1153	Drawing for Designers I	3	CAT 1153	Drawing for Designers I	3
CAT 1163	Drawing for Designers II	3	CAT 1163	Drawing for Designers II	3
			CAT 1173	Web Design Applications	3
CAT 1213	Fundamentals of Graphic Computers	3	CAT 1213	Fundamentals of Graphic Computers	3
			CAT1223	Typography II	3
CAT 1323	Advertising Prin. for Digital	3	CAT 1323	Advertising Prin. for Digital Design	3
CAT 2133	Graphic Design Studio	3	CAT 2133	Graphic Design Studio	3
CAT 2223	Basic Photography	3	CAT 2223	Basic Photography	3
CAT 2263	Web Graphic Production	3	CAT 2263	Web Graphic Production	3
CAT 2313	Basic Advertising Design	3	CAT 2313	Basic Advertising Design	3
CAT 2323	Advanced Advertising Design	3	CAT 2323	Advanced Advertising Design	3
CAT 2334	Practical Advertising	4	CAT 2333	Practical Advertising Techniques	3
CAT 2413	Rendering Techniques and Visual	3	CAT 2413	Rendering Techniques and Visual Production	3
			CAT 2824	Extended Reality (XR) 3D Design	4
			CAT 2834	Advanced Extended Reality (XR) 3D Design	4
CAT 291(1-6)	Special Project in Graphic Design	1-6	CAT 291(1-6)	Special Project in Graphic Design Technology	1-6
CAT 292(1-6)	Supervised Work Experience in	1-6	CAT 292(1-6)	Supervised Work Experience in Graphic Design Technology	1-6
WDT 1123	Web Development Concepts	3	WDT 1123	Web Development Concepts	3
WDT 1314	Web Programming I	4	WDT 1314	Web Programming I	4
WDT 1414	Web Design Applications	4	WDT 1414	Web Design Applications	4
WDT 1434	Web Design Applications II	4	WDT 1434	Web Design Applications II	4
WDT 2214	Web Programming II	4	WDT 2214	Web Programming II	4
WDT 2224	Web Programming III	4	WDT 2224	Web Programming III	4
WDT 2263	Web Graphic Production	3	WDT 2263	Web Graphic Production	3
WDT 2324	XML Programming	4	WDT 2324	XML Programming	4
WDT 2414	Game Programming	4	WDT 2414	Game Programming	4
WDT 2614	Web Project Management	4	WDT 2614	Web Project Management	4
WDT 2723	E-Commerce Strategies	3	WDT 2723	E-Commerce Strategies	3
WDT 2823	Web Server	4	WDT 2823	Web Server	4
WDT 291(1-6)	Special Project in Web Development Technology	1-6	WDT 291(1-6)	Special Project in Web Development Technology	1-6
				*WDT has been moved to a separate curriculum	

Appendix D: Recommended Textbook List

Recommended Graphic Design Technology Text Book List CIP: 50.0409- Graphic Design Technology		
Book Title	**Author (s)**	**ISBN**
Non-Designer's Design Book 2015, 4th Edition	Robin Williams	978-0-13-396615-2
Graphic Design Solutions, 6th Edition	Robin Landa	978-1-337-554053
Adobe InDesign Creative Cloud 2015, 1st Edition	Rydberg - Delmar	978-1-305-263642
Exploring Typography 2016, 2nd Edition	Rabinowitz	978-1-285-17681-9
Real World Print Production with Adobe Creative Cloud 2013, 1st Edition	Claudia Mccue	978-0-321-97032-9
Adobe Photoshop CC Classroom in a Book 2018	Faulkner - Chavez	978-0-13-485248-5
Adobe Illustrator CC 2018	Brian Wood	978-0-13-485249-2
The Graphic Designer's Guide to Portfolio Design 2013, 3rd Edition	Debbie Rose Myers	978-1-118-42814-6
Learning Web Design 2007, 4th Edition	Jennifer Robbins	978-1-449-31927-4
Thinking with Type	Ellen Lupton	978-1-616-89045-2