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# Digital Arts and Design Technology Mississippi Curriculum Framework

Graphic Design Technology - (Program CIP: 50.0409 – Graphic Design)  
Web Development Technology - (Program CIP: 11.0801 – Web Page Digital/Multimedia & Information Resources  
Design)

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The Office of Curriculum and Instruction (OCI) was founded in 2013 under the Division of Workforce, Career, and Technical Education at the Mississippi Community College Board (MCCB). The office is funded through a partnership with The Mississippi Department of Education (MDE), who serves as Mississippi's fiscal agent for state and federal Career and Technical Education (CTE) Funds. The OCI is tasked with developing statewide CTE curriculum, programming, and professional development designed to meet the local and statewide economic demand.

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## ADOPTION OF NATIONAL CERTIFICATION STANDARDS

The CIW Site Development Associate covers web page development skills. The development of web sites using Hypertext Markup Language version 5 (HTML5) and Cascading Style Sheets (CSS) is tested in the certification. The certification tests for foundational knowledge to develop basic web sites. This certification is ideal for students and professionals who want a career in web site design or marketing. Certification testing covers the following:

- Web site development using Hypertext Markup Language (HTML) and Extensible HTML (XHTML)
- Manual code writing, graphical user interface (GUI) authoring tools, and XHTML code validation
- Web page development using images, hyperlinks, tables, forms and frames
- CGI and connecting Web pages to databases
- Internet marketing and search engine optimization (SEO)
- Cascading Style Sheets (CSS) for formatting Web page content, and fundamental Web design concepts
- Development of Web sites as managed projects
- Introductory e-commerce solutions, and the relationship of Web site development to business goals

More information can be downloaded from

[http://www.ciwcertified.com/certifications/web\\_foundations\\_series/sda.php](http://www.ciwcertified.com/certifications/web_foundations_series/sda.php).

## INDUSTRY JOB PROJECTION DATA

### Graphic Design

Graphic Design occupations require an education level of long-term on-the-job training. The Bureau of Labor Statistics reports that there will be a 0.00% change in job outlook at the regional level and a 16.67% increase at the state level. Median annual income for this occupation is \$35,942.40 at both the regional and state level. A summary of occupational data from the Bureau of Labor Statistics Data Center and the State Workforce Investment Board data is displayed below ([www. http://swib.ms.gov/DataCenter/](http://swib.ms.gov/DataCenter/)):

**Table 1: Education Level**

Program Occupations	Education Level
Artists and related workers, all other	Long-term on-the-job training

**Table 2: Occupational Overview**

	Region	State	United States
2010 Occupational Jobs	<10	12	6530
2020 Occupational Jobs	<10	14	7282
Total Change	0	2	752
Total % Change	0.00%	16.67%	11.52%
2010 Median Hourly Earnings	\$17.28	\$17.28	\$28.29
2010 Median Annual Earnings	\$35,942.40	\$35,942.40	\$58,843.20
Annual Openings	0	0	75

**Table 3: Occupational Breakdown**

Description	2010 Jobs	2020 Jobs	Annual Openings	2010 Hourly Earnings	2010 Annual Earnings 2,080 Work Hours
Artists and related workers, all other	<10	<10	0	\$17.28	\$35,942.40
<b>TOTAL</b>	<b>&lt;10</b>	<b>&lt;10</b>	<b>0</b>	<b>\$17.28</b>	<b>\$35,942.40</b>

**Table 4: Occupational Change**

Description	Regional Change	Regional % Change	State % Change	National % Change
Artists and related workers, all other	0	0.00%	16.67%	11.52%



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### Web Page Digital/Multimedia & Information Resources Design

Web Page Digital/Multimedia & Information Resources Design occupations often require an education level of a bachelor's degree. However, technicians may be required to have only an associate's degree. The field is highly competitive and individuals with web design and animation experience tend to have an advantage. There is a projected 20.51% increase in occupational demand at the regional level and a 27.63% increase at the state level for multi-media artists and animators. There is a projected 11.04% increase in occupational demand at the regional level and a 14.59% increase at the state level for graphic designers. Median annual income for these occupations is \$35,505.60 at the regional level and \$34,202.69 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below ([www. http://swib.ms.gov/DataCenter/](http://swib.ms.gov/DataCenter/)):

**Table 1: Education Level**

Program Occupations	Education Level
Multi-media artists and animators	Bachelor's Degree
Graphic designers	Bachelor's Degree

**Table 2: Occupational Overview**

	Region	State	United States
2010 Occupational Jobs	628	830	218070
2020 Occupational Jobs	701	961	254388
Total Change	73	131	36318
Total % Change	11.62%	15.78%	16.65%
2010 Median Hourly Earnings	\$17.07	\$16.44	\$23.85
2010 Median Annual Earnings	\$35,505.60	\$34,202.69	\$49,606.05
Annual Openings	7	13	3631

**Table 3: Occupational Breakdown**

Description	2010 Jobs	2020 Jobs	Annual Openings	2010 Hourly Earnings	2010 Annual Earnings 2,080 Work Hours
Multi-media artists and animators	39	47	0	\$18.81	\$39,124.80
Graphic designers	589	654	6	\$15.33	\$31,886.40
<b>TOTAL</b>	<b>628</b>	<b>701</b>	<b>7</b>	<b>\$17.07</b>	<b>\$35,505.60</b>

**Table 4: Occupational Change**

Description	Regional Change	Regional % Change	State % Change	National % Change
Multi-media artists and animators	8	20.51%	27.63%	26.17%
Graphic designers	65	11.04%	14.59%	15.37%

## ARTICULATION

SEC Program	PS Program	PS Courses
Computer Graphics Technology (CIP 50.0402)	PS Digital Arts and Design Technology: (CIP 50.0409) Graphic Design Technology	CAT 1213 – Fundamentals of Graphic Computers
Computer Graphics Technology (CIP 50.0402)	PS Digital Arts and Design Technology: (CIP 11.0801) Web Development Technology	WDT – 1414 – Web Design Applications

## TECHNICAL SKILLS ASSESSMENT

Colleges should report the following for students who complete the program with a career certificate, technical certificate, or an Associate of Applied Science Degrees for technical skills attainment. To use the approved Alternate Assessment for the following programs of study, colleges should provide a Letter of Notification to the Director of Career Technical Education at the MS Community College Board. Please see the following link for further instructions: <http://www.mccb.edu/wkfEdu/CTDefault.aspx>.

CIP Code	Program of Study
50.0409	Graphic Design

Level	Standard Assessment	Alternate Assessment
Career	MS-CPAS-2 Postsecondary Graphic Design: Year 1	No Alternate Assessment Identified
Technical/AAS	MS-CPAS-2 Postsecondary Graphic Design: Year 2	No Alternate Assessment Identified

CIP Code	Program of Study
11.0801	Web Development Technology

Level	Standard Assessment	Alternate Assessment
Career	MS-CPAS-2 Postsecondary Web Page Digital/Multimedia & Information Resources Design: Year 1	No Alternate Assessment Identified
Technical/AAS	MS-CPAS-2 Postsecondary Web Page Digital/Multimedia & Information Resources Design: Year 2	CIW Site Development Associate

## ONLINE AND BLENDED LEARNING OPPORTUNITIES

Course content includes lecture and laboratory semester credit hours. Faculty members are encouraged to present lecture related content to students in an online or blended learning environment. Training related to online and blended learning will be available to faculty members through the MS Community College Board.

## INSTRUCTIONAL STRATEGIES

Instructional strategies for faculty members implementing the curriculum can be found through the Office of Curriculum and Instruction's professional development.

## ASSESSMENT STRATEGIES

The Office of Curriculum and Instruction's professional development offer assessment strategies to faculty members implementing the curriculum. Additionally, standards were included in course content when appropriate.

## RESEARCH ABSTRACT

Graphic and Web Design is both an art and a profession. Designers use artistic media and software to create visual communications and presentations. The combination of imagery and symbols are used to present a message to audiences and consumers. Industries that employ graphic designers include, but are not limited to, the following: publishing, television, advertising, marketing, retail, and education. Graphic design is both the act of creating and the product that is created. In other words, graphic design is the means by which visual communication and presentations are created. Graphic design also refers to the product that is created in the design process. Graphic designers design material for various industries and for various purposes. By 2020, the occupational outlook suggests approximately 260,000 graphic designers and web developers in the United States. The earnings potential for employees in graphic design and web development ranges from \$35,505.60 to \$58,843.20 per year.

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.

This curriculum was last validated and approved in 2010. In the spring of 2016, the Office of Curriculum and Instruction (OCI) met with seven business and industry representatives in Central MS, Northern MS and Southern MS and received five survey responses from industry members. Program faculty, administrators, and industry members were consulted regarding industry workforce needs and trends. An industry questionnaire was used to gather feedback concerning the trends and needs, both current and future, of their field.

The following changes were made to the 2016 curriculum framework: updated program descriptions for Graphic Design Technology and Web Development Technology; removed ART 1413 Design I, ART 1443 Design II, ART 1313 Drawing I, ART 1323 Drawing II, and CAT 1163 Drawing for Designers II from the Career Certificate Required Courses and placed into Digital Arts and Design Technology Electives; changed the semester credit hours for Basic Advertising Design and Advanced Advertising Design to include one hour of lecture and four lab hours; added some BOT and all CAT and WDT courses to the electives whereby any course from the list may be used as an elective if not already counted in a student's program of study as a required course; and updated student learning objectives within courses to better reflect the needs and wants of the industry.

## REVISION HISTORY

2010-Research & Curriculum Unit, Mississippi State University

2016-Office of Curriculum & Instruction, Mississippi Community College Board

## PROGRAM DESCRIPTION

Digital Arts and Design curriculum framework outlines two programs of study that requires courses in the career–technical core, designated areas of concentration, and the academic core. Students who successfully complete 30 semester hours as outlined in the program of study may be awarded a career certificate. Students who successfully complete 45 semester hours as outlined in the program of study may be awarded a technical certificate. Students who successfully complete 60 semester hours as outlined in the program of study may be awarded an Associate of Applied Science degree.

### **Graphic Design Technology**

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 completion of this program students have the option to continue building on their education or 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.

### **Web Development Technology**

Web Development Technology is a two-year program that offers training in web design and development; e-commerce strategies; content management systems; graphic design; programming and markup languages; and database administration and data driven content. Opportunities for students with expertise in web development include government agencies, corporations, entrepreneurship, and remote employment. Upon completion of this program students have the option to continue building on their education or by becoming a web developer, designer, software engineer, programmer, user-interface designer, and a mobile media designer.

## 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 Name
			Lecture	Lab		Lecture	Lab	
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						
	<b>TOTAL</b>	<b>15</b>						

### Career Certificate Required Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Name
			Lecture	Lab		Lecture	Lab	
CAT 1213	Fundamentals of Graphic Computers	3	1	4	75	15	60	
CAT 1153 <i>OR</i> ART 1313	Drawing for Designers I <i>or</i> 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 <i>or</i> MMT 1323	Advertising Prin. for Digital Design <i>or</i> 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						
	<b>TOTAL</b>	<b>30</b>						

### Technical Certificate Required Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Name
			Lecture	Lab		Lecture	Lab	
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						
	<b>TOTAL</b>	<b>15</b>						

## GENERAL EDUCATION CORE COURSES – GRAPHIC DESIGN TECHNOLOGY

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 (SACS) Commission on Colleges Standard 2.7.3 from the Principles of Accreditation: Foundations for Quality Enhancement<sup>1</sup> describes the general education core.

Section 2.7.3 In each undergraduate degree program, the institution requires the successful completion of a general education component at the collegiate level that (1) is substantial component of each undergraduate degree, (2) ensures breadth of knowledge, and (3) is based on a coherent rationale. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours or the equivalent. These credit hours are to be drawn from and include at least one course from the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. The 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		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
	Humanities/Fine Arts	3	3		45	45		
	Social/Behavioral Science	3	3		45	45		
	Math/Science Elective	3	3		45	45		
	Other academic courses per local community college requirements for AAS degree.	6						
	<b>Total</b>	<b>15</b>						

<sup>1</sup>

Southern Association of Colleges and Schools Commission on Colleges. (2012). *The principles of accreditation: Foundations for quality enhancement*. Retrieved from <http://www.sacscoc.org/pdf/2012PrinciplesOfAcrcditation.pdf>

## SUGGESTED COURSE SEQUENCE - WEB DEVELOPMENT 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
WDT 1123 <i>or</i> IST 1154	Web Development Concepts <i>or</i> Web and Programming Concepts	3-4	2	2	60	30	30	
WDT 1414	Web Design Applications	4	2	4	90	30	60	
WDT 1314	Web Programming I	4	2	4	90	30	60	
	Electives	3-4						
	<b>TOTAL</b>	<b>15</b>						

### 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
WDT 1123 <i>or</i> IST 1154	Web Development Concepts <i>or</i> Web and Programming Concepts	3-4	2	2	60	30	30	
WDT 1414	Web Design Applications I	4	2	4	90	30	60	
WDT 1314	Web Programming I	4	2	4	90	30	60	
WDT 2214	Web Programming II	4	2	4	90	30	60	
WDT 2263/ CAT 2263	Web Graphic Production	3	1	4	75	15	60	
	Instructor Approved Technical Electives per Local Community College	11-12						
	<b>TOTAL</b>	<b>30</b>						

### 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
WDT 2224	Web Programming III	4	2	4	90	30	60	CIW Site Development Associate
WDT 2614	Web Project Management	4	2	4	90	30	60	
	Instructor Approved Technical Electives per Local Community College	7						
	<b>TOTAL</b>	<b>15</b>						

## GENERAL EDUCATION CORE COURSES – WEB DEVELOPMENT TECHNOLOGY

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 (SACS) Commission on Colleges Standard 2.7.3 from the Principles of Accreditation: Foundations for Quality Enhancement<sup>2</sup> describes the general education core.

Section 2.7.3 In each undergraduate degree program, the institution requires the successful completion of a general education component at the collegiate level that (1) is substantial component of each undergraduate degree, (2) ensures breadth of knowledge, and (3) is based on a coherent rationale. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours or the equivalent. These credit hours are to be drawn from and include at least one course from the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. The 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		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
	Humanities/Fine Arts	3	3		45	45		
	Social/Behavioral Science	3	3		45	45		
	Math/Science Elective	3	3		45	45		
	Other academic courses per local community college requirements for AAS degree.	6						
	<b>Total</b>	15						

<sup>2</sup>

Southern Association of Colleges and Schools Commission on Colleges. (2012). *The principles of accreditation: Foundations for quality enhancement*. Retrieved from <http://www.sacscoc.org/pdf/2012PrinciplesOfAcrcditation.pdf>



## ELECTIVES – DIGITAL ARTS AND DESIGN TECHNOLOGY

\*Any course from this list may be used as an elective if not already counted in a student’s program of study as a required course.

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 1413	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	1	4		75	15	60	
CAT 1123	Graphic Design and Production II	3	1	4		75	15	60	
CAT 1143	Typography	3	2	2		60	30	30	
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 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 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		3-18	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

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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	

## 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	1	4	75

**Prerequisite:** None

**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.

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**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	1	4	75

**Prerequisite:**                           Instructor Approved

**Student Learning Objectives:**

1. Identify and describe process color printing techniques.
  - a. Discuss and describe the 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

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**Course Number and Name:**           **CAT 1153 Drawing for Designers 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.

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**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.

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**Course Number and Name:**        **CAT 1143 Typography**

**Description:**                        A comparison of traditional uses of typography with those of a more contemporary approach. This is an in-depth exploration of type in relation to meaning and form with a refined application of drawing skills before final output on the computer.

**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.

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**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.



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**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, promotion, advertising, publicity, public relations, product placement, and public perception.
  - a. Analyze and identify the target market for a promotion.
  - b. Develop strategies for campaigns and individual advertising messages.
  - c. Determine advertising cost from rate cards or other information.
  - d. Determine what products to advertise and why.
  - e. Determine logical media choices and contrast media choices.
  - f. List sources for locating secondary information.
  
2. Compare the advertising-related objectives of agencies, advertisers, and clients.
  - a. Determine legal and social issues.
  - b. Analyze legal guidelines and regulatory constraints.
  - c. Determine relevance of current advertising practices.
  
3. Analyze and evaluate promotional practices and requirements for the production and distribution of creative media.
  
4. Determine and compare media choices and the unique requirements of print media and production, broadcast media, Internet, direct response, out-of-home, and packaging as a promotional tool.
  
5. Analyze and evaluate the social, legal, and regulatory constraints of creative media and intellectual property.

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**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.

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**Course Number and Name:** CAT 2263/WDT 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. Discuss and explain graphic file formats (GIF, JPEG, PDF, TIFF, BMP, PICT, PNG, etc.).
  - d. Discuss user attention to creative interactive features versus processing time.
  - e. Research and discuss how designing for the Web compares to designing for print reproduction.
  - f. Research and discuss the use of royalty-free stock art/photos, creating original graphic content, creative ownership, copyright protection, trademarks, and public domain materials.
  - g. Research and then compare content and distribution regulations of Web versus printed materials.
  - h. 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. Compare Web color models to standard mass production print color models.
  - c. Research and discuss effective and ineffective color combinations for the Web.
  - d. Compare combinations of text colors to background colors for contrast and legibility.
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.
  - d. Research and discuss the different software applications used to create, edit, or manipulate type:
    - (1) Type as body copy
    - (2) Type as a single, dominant graphic element

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- e. Research and discuss web fonts.
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.

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**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.
  - b. Plan unique concepts to advertise an item, a service, or an idea.
  - c. 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.

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**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.

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**Course Number and Name:**        **CAT 2223 Basic Photography**

**Description:**                                An introduction to photography with emphasis on the digital camera, 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 cameras.
  
2. Discuss, describe, and demonstrate the basic operation of creating a digital image.
  - a. Demonstrate the operation of a digital studio camera.
  - b. Differentiate high quality from poor quality for end user.
  - c. Discuss, calculate, and demonstrate depth of field.
  
3. Discuss, describe, and demonstrate presentation techniques.
  - a. Discuss, describe, and demonstrate presentation techniques.
  - b. Incorporate basic composition techniques.

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**Course Number and Name:**           **CAT 2333-4 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
4	2	4	90

**Prerequisite:**                           Instructor Approved

**Student Learning Objectives:**

1. Demonstrate performance skills needed for productive employment.
  - b. Develop creative, original ideas, and take them from concept to completion.
  - c. Participate in a mock job interview, and critique according to such areas as appearance, communication skills, and so forth.
  - d. 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 portfolio.
  - c. Generate a Web-based, CD-based, or DVD-based portfolio.
  - d. 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



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**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 illustration 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.

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**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.

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**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.

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**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.

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**Course Number and Name:**        **WDT 1123 Web Development Concepts**

**Description:**                        This course is an introduction to the Internet and its subsets. It includes basic and advanced features of the Internet, World Wide Web, Internet clients, and website creation. Upon the completion of this course, students will be able to create websites that are accessible, usable, and standards-compliant.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

**Prerequisite:**                        Instructor Approved

**Student Learning Objectives:**

1. Present an overview of the Internet.
  - a. Explain the history of the Internet and how it works.
    - (1) Describe connecting to the Internet and internet protocols.
    - (2) Discuss the Domain Name System and Uniform Resource Locators.
    - (3) Discuss intranets and extranets.
    - (4) Discuss the standards organizations.
  - b. Discuss netiquette and privacy issues.
  - c. Research a variety of browsers, browser plug-ins and add-ons, and Internet security.
2. Demonstrate website publishing and hosting.
  - a. Create a hosting account.
  - b. Publish a website onto a server.
  - c. Use File Transfer Protocol (FTP).
3. Develop a Web site using HyperText Markup Language (HTML).
  - a. Explain HTML coding.
    - (1) Explain markup tags, elements, and attributes.
    - (2) Discuss the basic structure of an HTML document.
    - (3) Explain the difference between block-level and in-line elements.
    - (4) Use comments and standard coding practices.
    - (5) Compare and contrast text versus WYSIWYG editors.
  - b. Demonstrate proper use of HTML.
    - (1) Code according to W3C HTML standards.
    - (2) Discuss web browsers and standards.
    - (3) Use W3C validation service.
  - c. Discuss and implement website accessibility and usability.
    - (1) Demonstrate proper and improper usage of tables in layout (i.e. tables for layout).
  - d. Discuss navigation concepts.
    - (1) Explain the elements of navigation design.
    - (2) Demonstrate primary and secondary navigation.
    - (3) Discuss navigation hierarchy.
    - (4) Discuss site structure, URLs, and file names.
    - (5) Discuss familiar navigation conventions.

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4. Style a website using Cascading Style Sheets (CSS).
  - a. Explain web page layout and design.
    1. Discuss the history of CSS.
    2. Explore typography and color.
    3. Demonstrate effective layout using CSS.
  - b. Explore and implement standards compliant CSS.
    - (1) Explore CSS syntax.
    - (2) Discuss inheritance.
    - (3) Discuss the CSS box model.
    - (4) Discuss selectors, properties, and values.
    - (5) Demonstrate proper usage of classes and IDs.
    - (6) Use W3C validation service.

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**Course Number and Name:**            **WDT 1314 Web Programming I**

**Description:**                            This course offers an introduction to building web applications.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:**                            Instructor Approved

**Student Learning Objectives:**

1. Discuss programming development concepts.
  - a. Examine programming language fundamentals and syntax.
    - (1) Explain objects, data types, reserved words, variables, and scope.
    - (2) Implement control structures, operators, expressions, and statements.
    - (3) Use functions, methods, procedures, subroutines, modules, and so forth.
  - b. Plan a program using pseudocode and/or flowcharts.
  
2. Create applications using program development steps.
  - a. Discuss the steps in the program development life cycle.
  - b. Design program.
  - c. Code program.
  - d. Test and debug program.
  
3. Create web applications.
  - a. Differentiate between server-side and client-side programming.
    - (1) Illustrate the data flow process.
    - (2) Download, install, and/or configure required software.
  
  - b. Explain string manipulation.
    - (1) Use built-in string functions.
    - (2) Employ regular expressions and pattern matching.
  
  - c. Demonstrate form processing.
    - (1) Evaluate form submission methods.
    - (2) Validate and process user-entered data.
    - (3) Create form-based file upload.
  
  - d. Discuss file system interaction and directory services.
    - (1) Demonstrate file object creation and destruction.
    - (2) Use directory functions.
    - (3) Create, delete, and move files and directories.
    - (4) Retrieve and change file properties.
    - (5) Identify file opening modes.
    - (6) Read, write, and append file data.

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**Course Number and Name:**           **WDT 1414 Web Design Applications I**

**Description:**                           Application of various professional and personal web design applications. Students will work with the latest WYSIWYG editors, animation/multimedia products, and photo editors.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:**                           Instructor Approved

**Student Learning Objectives:**

1. Design web pages using various applications.
  - a. Demonstrate use of WYNSIWYG editor applications.
    - (1) Define and use terminology related to WYSIWYG editor applications
    - (2) Create and edit web content utilizing WYSIWYG editor applications.
  - b. Demonstrate animation/multimedia applications.
    - (1) Define and use terminology related to creating and using multimedia design application
    - (2) Develop and edit animated/multimedia content specific for web applications.
  - c. Demonstrate digital image editing applications.
    - (1) Define and use terminology related to creating and using image editing applications.
    - (2) Create, edit, and optimize digital images specifically for use as web content.



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**Course Number and Name:**           **WDT 1434 Web Design Applications II**

**Description:**                           A continuation of Web Design Applications I with increased coverage of multimedia development. Students will work with the latest web authoring tools and video editing software.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:**                           Instructor Approved

**Student Learning Objectives:**

1. Design advanced web pages using various applications.
  - a. Demonstrate advanced usage of web authoring tools.
    - (1) Define and use terminology related to advanced usage of web authoring tools.
    - (2) Create and edit advanced Web content utilizing web authoring tools.
  - b. Demonstrate advanced usage of animation/multimedia applications.
    - (1) Define and use terminology related to creating and using advanced multimedia design applications.
    - (2) Develop and edit advanced animated/multimedia content specific for Web applications.
  - c. Demonstrate digital video editing applications.
    - (1) Define and use terminology related to creating and using video editing applications.
    - (2) Create, edit, and optimize video specifically for use as Web content.

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**Course Number and Name:**        **WDT 2214 Web Programming II**

**Description:**                        This course is a continuation of Web Programming I with an increased emphasis on data-driven content and client-side interaction.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:**                        Instructor Approved

**Student Learning Objectives:**

1. Demonstrate client-side programming using ECMAScript.
  - a. Examine the Document Object Model (DOM).
  - b. Examine forms.
    - (1) Discuss validation.
    - (2) Validate form data.
  - c. Discuss client-side cookies and security.
    - (1) Explain state information.
    - (2) Describe query strings.
    - (3) Save state information with cookies.
    - (4) Explain ECMAScript security issues.
  
2. Demonstrate effective error handling and debugging techniques.
  - a. Discuss syntax, logic, and run-time errors.
  - b. Use debugging tools.
  
3. Implement frameworks and libraries.

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**Course Number and Name:** WDT 2224 Web Programming III

**Description:** Continuation of Web Programming II with increased emphasis on enhanced client-server interaction.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:** Instructor Approved

**Student Learning Objectives:**

1. Create web applications using advanced server-side technologies.
  - a. Extend programming capabilities.
    - (1) Discuss, install, and use add-ins, modules, and so forth.
  - b. Use web database technologies.
    - (1) Identify data-driven content.
    - (2) Explore SQL fundamentals.
    - (3) Establish database connectivity.
    - (4) Perform database operations.
  - c. Identify benefits of reusable code.
    - (1) Discuss parameters, scope, and passing data.
    - (2) Return data from functions, methods, procedures, subroutines, modules, and so forth.
  - d. Apply object-oriented and procedural programming.
    - (1) Illustrate classes and objects.
    - (2) Explain polymorphism and inheritance.
    - (3) Discuss class structure, constructors, deconstructions, and instantiation.
    - (4) Demonstrate use of class attributes and call class operations.
    - (5) Demonstrate procedures.
  - e. Employ application structure techniques.
    - (1) Diagram application architecture.
    - (2) Discuss coding standards and practices.
    - (3) Establish naming conventions.
    - (4) Demonstrate use of standard directory structure.
    - (5) Organize code into logical units.
  - f. Maintain state between the client and server.
    - (1) Describe the uses and types of cookies.
    - (2) Create, modify, read, and delete cookies.
    - (3) Discuss session identifiers.
    - (4) Store, retrieve, and remove session variables.
  - g. Analyze security issues.
    - (1) Explore error handling techniques.

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- (2) Discuss user authentication procedures.
  - (3) Demonstrate encryption methods.
2. Communicate across various web-based applications.
- a. Discuss data flow and transfer.
  - b. Compare and contrast different data formats (i.e. XML, JSON, AMF, etc.).

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**Course Number and Name:** WDT 2324 XML Programming

**Description:** Provides a comprehensive understanding of the Extensible Markup Language (XML).

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:** Instructor Approved

**Student Learning Objectives:**

1. Outline the history and development of GML, SGML, and HTML.
  - a. Summarize evolution of XML.
  - b. Explore XML development organizations.
  - c. Examine W3C specifications and guidelines.
  - d. Discuss XML directives.
  - e. Examine XML-driven technologies.
    - (1) Outline the XML family of technologies.
    - (2) Compare various XML-based languages.
2. Compare XML tools, and explore document components and structure.
  - a. Use XML creation and editing software.
  - b. Examine XML browsers.
  - c. Explain XML parsers.
  - d. Explain XML tags.
  - e. Discuss XML elements and attributes.
  - f. Compare parent-child relationships.
  - g. Demonstrate well-formedness.
  - h. Define the XML namespace.
3. Assess XML validation, transformation, and styling.
  - a. Discuss the Document Object Model (DOM).
  - b. Describe XML Document Type Declarations.
  - c. Explain XML encoding.
  - d. Use XML validator.
  - e. Analyze XML schemas.
  - f. Differentiate among CSS, XSL, and XSLT.
  - g. Critique style sheet syntax.
  - h. Discover data binding and data islands.

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**Course Number and Name:**        **WDT 2614 Web Project Management**

**Description:**                        This course is the culmination of all concepts learned in the Web Development Technology curriculum. Emphasis will be placed on portfolio development, Web design and development, maintenance, security, and evaluation.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:**                        Instructor Approved

**Student Learning Objectives:**

1. Evaluate and implement website development processes.
  - a. Identify the scope of a large-scale project (individual or team-based).
  - b. Outline the workflow.
  - c. Discuss time and cost management.
  - d. Discuss positive and negative customer interactions.
  - e. Analyze hardware and software feasibility.
  - f. Discuss job roles.
  - g. Discuss website maintenance.
  
2. Create a portfolio.
  - a. Create a personal website that includes a resume and links to other work.
  - b. Create a CD that includes all web designs produced and/or published.
  
3. Plan, design, and publish a website according to client specifications.
  - a. Examine published commercial websites.
  - b. Define hosting options (in-house or outsource).
  - c. Devise a testing plan, i.e., functionality, layout, load, link, and usability testing.
  - d. Perform necessary debugging and editing.
  - e. Judge the effectiveness of the website.

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**Course Number and Name:**           **WDT 2723 E-Commerce Strategies**

**Description:**                           Provides opportunities for students to examine strategies and products available for building electronic commerce sites, examine how such sites are managed, and explore how they can complement an existing business infrastructure. Students get hands-on experience implementing the technology to engage cardholders, merchants, issues, payment gateways, and other parties in electronic transactions.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
3	2	2	60

**Prerequisites:**                        Instructor Approved

**Student Learning Objectives:**

1. Design electronic commerce sites.
  - a. Construct an online product promotion.
    - (1) Identify web marketing goals.
    - (2) Examine existing Web marketing models.
    - (3) Create marketing goals and strategies.
    - (4) Identify the target market.
    - (5) Evaluate positive and negative growth factors.
    - (6) Compute product pricing.
    - (7) Specify product distribution and availability.
    - (8) Generate banner ads.
    - (9) Track banner ads.
    - (10) Develop customer incentives.
    - (11) Manipulate search engine placement.
    - (12) Design effective e-mail marketing strategies.
  - b. Critique e-business models.
    - (1) Assess e-service methods.
    - (2) Differentiate between synchronous and asynchronous services.
    - (3) Create user-friendly self-service strategies.
    - (4) Analyze successful customer relationship management practices.
    - (5) Identify Customer Relationship Management (CRM) software.
    - (6) Compare customized, interactive websites that exemplify effective CRM strategies.
    - (7) Differentiate among business to business, business to consumer, consumer to business, and consumer to consumer.
    - (8) Describe market places, portals, and hubs.
    - (9) Explain supply chains and procurement.
    - (10) Discuss inventory, freight and shipping arrangements, and order tracking process.
    - (11) Identify inter-office productivity and cost reduction tools.
  - c. Develop storefront solutions.
    - (1) Determine outsourcing needs.
    - (2) Appraise storefront packages.

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- (3) Define security, privacy, and ethical issues (i.e., credit card transaction, copyrights, encryption, and cookies).
  - (4) Assess website performance.
    - a) Test links.
    - b) Measure download time on different connection speeds.
    - c) Discuss payment systems and security.
- 
- 2. Discuss electronic payment media.
  - 3. Describe e-commerce threats.
  - 4. Explain encryption methods.



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**Course Number and Name:**            **WDT 2823 Web Server**

**Description:**                            Introduces students to Web servers and the platforms on which they reside.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:**                            Instructor Approved

**Student Learning Objectives:**

1. Select, install, and configure web servers.
  - a. Install a network server operating system.
    - (1) Compare advantages and disadvantages of current network server operating systems.
    - (2) Install and configure a network server operating system.
    - (3) Set up user accounts.
    - (4) Set up domains (DNS).
    - (5) Implement network security policies.
  - b. Use Internet services (FTP, SSH, etc.).
  - c. Install Web server components.
    - (1) Compare advantages and disadvantages of current web server applications.
    - (2) Discuss web server and platform dependence.
    - (3) Discuss e-commerce issues, i.e., security, catalogs, shopping carts, and database directories.
    - (4) Discuss aliases and virtual directories.
    - (5) Install and name a web server.
    - (6) Configure a web server to host websites.
    - (7) Configure web server security features.
    - (8) Analyze web server performance.
  - d. Install and configure dynamic server-side language components.
  - e. Install and configure a database management system.
  - f. Install and configure a content management system.

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**Course Number and Name:**        **WDT 291(1-6) Special Project in Web Development Technology**

**Description:**                        Practical applications of skill and knowledge gained in other Web Development 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. In cooperation with the instructor, develop a written plan for a 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. Prepare a written report of activities and accomplishments.
  - a. Compile a daily log of activities and tasks.
  - b. Submit weekly reports to the instructor summarizing activities and tasks completed.
  - c. Submit a final report of activities and experiences.
  
3. Follow written guidelines for the special project.
  - a. Complete all required activities in the training program.
  - b. Adhere to all written and oral instructions.

**Course Number and Name:** WDT 2414 Game Programming

**Description:** This course is an introduction to developing interactive web-based games using ECMA script programming. Upon completion of this course, students will be able to create a fully functional game and post it on the web.

**Hour Breakdown:**

Semester Hours	Lecture	Lab	Contact Hours
4	2	4	90

**Prerequisite:** Instructor Approved

**Student Learning Objectives:**

1. Explore game programming.
  - a. Discuss the history and future of gaming.
  - b. Explain the advantages and disadvantages of web-based games.
  - c. Identify game genres.
  - d. Describe the game design process.
2. Implement animation effects in games.
  - a. Analyze physics for games and isometrics.
  - b. Create user-driven motion.
3. Create custom graphics for games.
  - a. Describe image optimization games.
  - b. Discuss sprites and parallax scrolling.
4. Use sound in clips.
  - a. Describe proper use of audio effects.
  - b. Create event-driven sound effects.
5. Create interactivity.
  - a. Examine the programming environment as appropriate.
  - b. Discuss game logic.
  - c. Demonstrate collision detection.
  - d. Develop user-driven events.
  - e. Save game data to system.

## RECOMMENDED TOOLS AND EQUIPMENT FOR GRAPHIC DESIGN TECHNOLOGY

### CAPITALIZED ITEMS

1. Cintiq (WACOM)
2. Flat files (2)
3. Large format plotter with RIP software (1)
4. Color laser printer (2 - one 13x19, one 11x17 )
5. Matt cutter (1)
6. Paper cutter (1)
7. Opaque projector (1)
8. Consumer grade digital camera and hard case (10 per lab)
9. Professional grade digital camera and hard case (1 per lab)
10. Digital video camera and hard case (1 per lab)
11. Video editing software and editing system (1 per lab)
12. Digital photography lighting system (1 per lab)
13. Drawing tablets (1 per student)
14. Industry required software
15. Ergonomic student desk and chairs (1 per student)
16. Vinyl cutter (1 per lab)
17. External file server

### 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

## 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 dual color graphic monitor (1)
4. Audio recording equipment (1)
5. Printer (1)
6. Digital projector with an appropriate resolution (1)
7. Interactive board (1)
8. TV (1)
9. DVD Drive
10. Teacher work station (1)
11. Remote desktop (1 per lab)
12. Subscription to a stock photography
13. Tablet

## RECOMMENDED TOOLS AND EQUIPMENT FOR WEB DEVELOPMENT TECHNOLOGY

### CAPITALIZED ITEMS

1. Graphic interface computer with industry standard graphic monitor (1 per student)
2. Dedicated web server and software with off-site access (1 per lab)
3. Unrestricted Internet access
4. Color laser printer–network (1 per lab)
5. Data projector with multimedia computer and projection screen (1 per lab)
6. Digital camera–high resolution (2 per lab)
7. Laptops with high end video cards (5 per lab)
8. Student lockers (1 per student)
9. Ergonomic student desk and chairs (1 per student)
10. Digital photography lighting system (1 per lab)
11. Industry required software
12. Tripod (1)
13. POV camera (1)
14. Multi-function color laser printer

### NON-CAPITALIZED ITEMS

1. External hard drive (5 per lab)
2. Web digital camera (5 per lab)
3. Graphics tablet (1 per station)
4. Digital camera (1 per station)
5. Scanner–high resolution color–network capable (1 per lab)
6. Network switch– the size of the switch should accommodate the number of work stations in the class (1 per lab)
7. Network router
8. DVD burner (1 per lab)
9. Wireless access points
10. Web hosting for students with remote access

## RECOMMENDED INSTRUCTIONAL AIDS AND RESOURCES

Recommend that teachers have access to the following:

1. Universal power supply (1 per lab)
2. Computer, graphic interface (1)
3. Large dual color graphic monitor (1)
4. Printer (1)
5. Digital projector with an appropriate resolution (1)
6. Interactive board (1)
7. Teacher work station (1)
8. Remote desktop (1 per lab)
9. Subscription to a stock photography

## 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:

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- 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)

## 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