UNDERGRADUATE PROGRAMS

Students studying in the Department of Engineering & Design (DESN/EENG/MENG/METC/TECH) may select from a broad number of disciplines that include Electrical Engineering, Mechanical Engineering Technology, Mechanical Engineering, Visual Communication Design, Construction, Design and Manufacturing. The primary goal of the Department of Engineering & Design is to provide students with the technical background required for careers in business and industry. Coursework within each program offers experiences in many areas of engineering and design that enhance the preparation of our graduates.

Engineering & Design Departmental Scholarship Information

The department awards two scholarships annually: the M. W. Consulting Engineering Scholarship and Aaron G. Mertens memorial scholarship. These scholarships are awarded to our majors based on academic qualifications and need.

General Admissions Information for Engineering & Design

Students entering the Bachelor of Science degree program as juniors should have completed one year of physics as well as mathematics through precalculus. Failure to complete the mathematics and physics requirements before the junior year likely will delay graduation.

Grade Requirements

In order to graduate, students majoring in the department must earn a GPA ≥2.5 in departmental coursework. Students getting a minor in the department must also earn a GPA ≥2.5 in departmental coursework.

Required courses in the following programs of study may have prerequisites. Reference the course description section for clarification.

BACHELOR OF ARTS (BA)

Student Learning Outcomes—students will:

- understand basic business practices, including working on teams;
- identify, analyze and solve communication problems;
- create and develop visual form in response to communication problems;
- show respect for diversity and knowledge of contemporary professional, societal and global issues;
- recognize the need for, and the ability to engage in, lifelong learning;
- describe and respond to the audiences and contexts which communication solutions must address.

VISUAL COMMUNICATION DESIGN

A major in Visual Communication Design educates and prepares students to conceive and produce creative solutions to satisfy the visual communication needs of society. Graduates are prepared for careers in graphic design, web design, multimedia design, advertising, printing, publishing or related fields. Theory and practice are covered in a variety of contexts, including process and product, form and content, type and image and interactivity. Current technology and future trends are addressed in the context of industry practices. This major is combined with a related minor in another academic area to specialize in specific career preparation.

Notes:
1. two years of a single high school foreign language or one year of a single college level foreign language is required;
2. in order to receive the Visual Communication Design degree, students must earn a grade ≥3.0 in DESN 263 and DESN 363 in addition to the department requirement of ≥2.5 GPA in all DESN/TECH coursework;
3. MATH 107 (5) is recommended for the above major.

Required Core Courses (50 credits)

- DESN 100 Drawing for Communication (5)
- DESN 216 Digital Foundations (4)
- DESN 243 Typography (4)
- DESN 259 History of Design (4)
- DESN 263 Visual Communication Design 1 (5)
- DESN 363 Visual Communication Design 2 (5)
- DESN 366 Production Design (4)
- DESN 368 Web Design 1 (4)
- DESN 378 Web Design 2 (4)
- DESN 463 Visual Communication Design 3 (5)
- DESN 490 Senior Capstone (4)
- DESN 493 Portfolio (2)

Supporting Courses (18–19 credits)

- ART 107 Basic Design (5)
- CMST 201 Public Speaking (5)
- or CMST 200 Introduction to Speech Communication (4)
- TCOM 205 Introduction to Technical Communication (5)
- TECH 393 Technology in World Civilization (4)

Electives (12 credits)

Total credits for above major 80 credits
**BACHELOR OF FINE ARTS (BFA)**

**Student Learning Outcomes—students will:**

- have the ability to solve visual communication problems, including the skills of identification, research and information gathering, analysis and generation of alternative solutions;
- have the ability to draw on thoughts and ideas in relation to an art historical timeline, apply contemporary concepts in design to their own work and articulate and discuss art within our own culture and the art of other cultures;
- have basic skills to create a response to visual communication problems, including an understanding of the principles of visual organization/composition, information hierarchy, symbolic representation, typography, aesthetics and the construction of meaningful images;
- have an understanding of multimedia tools and technology, including their roles in the creation, reproduction and distribution of visual messages;
- be able to describe and respond to audiences and contexts that communication solutions must address, including recognition of the physical, cognitive and social human factors that shape design decisions. Students will have an understanding of basic business practices, including the ability to organize design projects and to work productively as members of a team;
- create a cohesive body of work on a level appropriate to entry into both graduate schools and design professions and have the the ability to defend their portfolio work both orally and in written statement.

**VISUAL COMMUNICATION DESIGN**

The Department of Engineering & Design and the Department of Art offer an intercollegiate Visual Communication Design program founded on four major concerns: developing the highest levels of individual creative performance and professional education; providing courses for all students which develop ability in both technical visual communications as well as important core skills in the area of fine art; giving students greater cultural and historical understanding and aesthetic appreciation of the function of design in the arts and in the world around them; and functioning as dual centers of emphasis and resource for the visual arts, visual communication and technology in the cultural activities of both the university community and the community at large.

Both departments are committed to working together to give students access to current technologies in the area of visual communication design, as well as experience in developing the necessary visual skills provided by studio art areas such as drawing, painting and sculpture.

The program ends with a three quarter senior year intensive studio experience for the preparation of portfolios for job placement or graduate school application. This includes midterm faculty review of student work, quarterly outside professional review and a final exhibition as the completion of the student portfolio of work.

Prior to declaring the BFA major, students must apply to the program by submitting a portfolio and academic transcripts. Application is recommended at the end of the sophomore year to help ensure that appropriate junior year courses are selected. Students need not be in the BFA to take DESN or ART classes, with the exception of the senior year three quarter class DESN 471 or ART 471. This course requires previous acceptance into the BFA degree program.

**Required Courses (104 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ART 107</td>
<td>Basic Design</td>
<td>5</td>
</tr>
<tr>
<td>ART 207</td>
<td>Color Design</td>
<td>5</td>
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<tr>
<td>ART 213</td>
<td>Art in the Humanities</td>
<td>5</td>
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<tr>
<td>ART 300</td>
<td>Drawing</td>
<td>5</td>
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<tr>
<td>ART 303</td>
<td>Digital Art I</td>
<td>5</td>
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<tr>
<td>ART 307</td>
<td>3D Design</td>
<td>5</td>
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<tr>
<td>ART 360</td>
<td>Printmaking</td>
<td>5</td>
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<tr>
<td>ART 401</td>
<td>Life Drawing</td>
<td>5</td>
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<tr>
<td>ART 431</td>
<td>History of Contemporary Art</td>
<td>5</td>
</tr>
<tr>
<td>DESN 100</td>
<td>Drawing for Communication</td>
<td>5</td>
</tr>
<tr>
<td>DESN 216</td>
<td>Digital Foundations</td>
<td>4</td>
</tr>
<tr>
<td>DESN 243</td>
<td>Typography</td>
<td>4</td>
</tr>
<tr>
<td>DESN 259</td>
<td>History of Design</td>
<td>4</td>
</tr>
<tr>
<td>DESN 363</td>
<td>Visual Communication Design 2</td>
<td>5</td>
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<tr>
<td>DESN 366</td>
<td>Production Design</td>
<td>4</td>
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<tr>
<td>DESN 368</td>
<td>Web Design 1</td>
<td>4</td>
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<tr>
<td>DESN 378</td>
<td>Web Design 2</td>
<td>4</td>
</tr>
<tr>
<td>DESN 463</td>
<td>Visual Communication Design 3</td>
<td>5</td>
</tr>
<tr>
<td>ART 471</td>
<td>Senior Exhibition</td>
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<tr>
<td>DESN 490</td>
<td>Senior Capstone</td>
<td>4</td>
</tr>
<tr>
<td>DESN 495</td>
<td>Internship</td>
<td>4</td>
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<tr>
<td>TECH 393</td>
<td>Technology in World Civilization</td>
<td>4</td>
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**Electives (9 credits)**

- Design Elective (4)
- Studio Art Elective (5)

**Total credits for above major:** 113 credits

**MINOR**

**VISUAL COMMUNICATION DESIGN MINOR**

A minor in visual communication design will provide students with a foundation in the creative, conceptual and technical skills necessary to understand and participate in the visual communication needs of future professional practice. This minor supports endeavors in visual communication design for print and web, including effective use of design thinking, process and techniques.

**Required Courses (13 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>DESN 100</td>
<td>Drawing for Communication</td>
</tr>
<tr>
<td>DESN 216</td>
<td>Digital Foundations</td>
</tr>
<tr>
<td>TECH 393</td>
<td>Technology in World Civilization</td>
</tr>
</tbody>
</table>

**Electives—choose from the following list (12–14 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>DESN 243</td>
<td>Typography</td>
</tr>
<tr>
<td>DESN 259</td>
<td>History of Design</td>
</tr>
<tr>
<td>DESN 263</td>
<td>Visual Communication Design 1</td>
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<tr>
<td>DESN 275</td>
<td>Digital Audio</td>
</tr>
<tr>
<td>DESN 350</td>
<td>Digital Imaging and Photography</td>
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<tr>
<td>DESN 360</td>
<td>Publication Design</td>
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<tr>
<td>DESN 363</td>
<td>Visual Communication Design 2</td>
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<tr>
<td>DESN 366</td>
<td>Production Design</td>
</tr>
<tr>
<td>DESN 368</td>
<td>Web Design 1</td>
</tr>
<tr>
<td>DESN 375</td>
<td>Digital Video</td>
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<tr>
<td>DESN 378</td>
<td>Web Design 2</td>
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</tbody>
</table>

**Total minimum credits for above minor:** 25 credits

**Notes:**
1. There is no foreign language requirement for BFA students.
2. Including university requirements, the above program requires a minimum of 180 credits or an average of 15 credits per quarter for a 12 quarter, four-year program. The 180 credits are based upon the following assumptions: Students will have satisfied university competencies (ENGL 101 and CPLA 100). If this is not true, then the student will have to complete up to six more credits of classes (See university competencies in this catalog.)
3. ART 213 fulfills EWU’s Fine Arts core requirement.
4. TECH 393 fulfills EWU’s International Studies requirement.
5. DESN 490 fulfills EWU’s senior capstone requirement.
Design Courses

Terms offered: fall, winter, spring, summer (FWSU).
If no terms are indicated, check with the department or EagleNET.

DESN 100 Drawing for Communication (5)
This course covers hand-drawing as a design skill. Emphasis is on sketching, design drawing, design process and composition studies for visual presentation and design solutions. Students gain drawing skills such as basics of drawing techniques, basic shapes, light, texture, pattern, gesture and perspective drawing to communicate and present their ideas visually. Students learn and develop critical thinking and creative problem solving skills using the drawing process.

DESN 216 Digital Foundations (4)
Introduction to media design and digital culture using computer software for the creation and manipulation of images and text, file management, and preparation for print, web or multimedia uses.

DESN 243 Typography (4)
Prerequisite: DESN 100 and DESN 263.
An introductory-level course concentrating on the fundamentals of typography with emphasis on letterform, typographic syntax, type specification, type as image and the use of type in a variety of communicative purposes.

DESN 259 History of Design (4)
This course considers the development of design in the broad sense of the term. Beginning with the Industrial Revolution and continuing forward to the present day, this course explores the components of design that have influenced the direction of design thinking.

DESN 263 Visual Communication Design I (5)
Note: in order to receive the Visual Communication Design degree, students must earn at least a 3.0 grade in this class, in addition to the department requirement of 2.5 GPA in all DESN coursework.
Prerequisite: DESN 100 and DESN 216.
This course provides an introduction to Visual Communication Design including the theories, principles and practices of visual communication, concept development, design process and design technique.

DESN 275 Digital Sound (4)
This course provides a foundation in the techniques of sound design, recording, production and editing for digital media. Students will create and record sound files, apply effects and mix and produce a variety of multimedia audio elements using state-of-the-art digital technology. Applicable uses include websites, games, multimedia products for promotion and learning, entertainment products and virtual worlds.

DESN 300 Visual Literacy (5)
Cross-listed: CMST 309.
This course helps students develop the set of skills needed to critically interpret images of the past and present and produce images that effectively convey a message to an audience. This includes an awareness of technology’s role in the creation and dissemination of visual communication along with the role of persuasive strategies to target visual consumers. Students will both analyze and produce rhetorical-visual images and develop the skills needed to manage visual representation in a cultural context.

DESN 325 Emergent Design (4)
Prerequisite: DESN 263.
This course explores benefits and risks of new design technologies. Students learn to recognize emergent design technologies and use them to address design problems and explore ways in which new tools and output paradigms in order to create forward thinking design solutions. Through hands-on, project-based learning, students investigate the possibilities inherent in these new technologies.

DESN 338 Principles of Interaction Design (4)
Prerequisite: ENGL 201.
Students investigate principles of interaction design of web enabled devices and differences and similarities between physical interaction and conceptual interaction through the use of metaphor. Exploring relationships between analog and digital frameworks, students become mindful of the overlapping patterns of interaction between the two systems. The five essential principles of interaction design: consistency, visibility, learnability, predictability and feedback are evaluated through the mediums of digital interface, physical object and environment.

DESN 348 Rhetoric of User-Centered Design (4)
Prerequisite: CMST 300.
Students examine different rhetorical frameworks that inform software user interface/experience (UI/UE) and content design. Supporting theories, such as visual rhetoric, contextual design, information architecture, gestalt, content strategy, and design ethics, are investigated. Students demonstrate their understanding of theoretical principles by creating and refining small UI/UX related deliverables and by practicing rigorous written analysis and critique.

DESN 350 Digital Imaging and Photography (4)
Prerequisite: CPLA 101 or CPLA 120.
This introductory course teaches beginning photographers how to improve their photographic technique, use digital cameras for effective visual communication and edit images with professional software tools. Working with their own digital cameras students will practice professional shooting strategies and produce weekly practical and creative photo assignments. Topics include camera theory, film formats; composition basics; composing within the frame; using natural and artificial lighting; texture, shape, form and line in the photograph; framing with foreground elements; digital field techniques; repair and retouching; compositing, portraiture, scenic and nature photography; product photography, action photography and close-up photography.

DESN 351 Advanced Photography (4)
Prerequisite: DESN 350.
An extension of DESN 350 with considerable work in advanced enlarging techniques portraiture with emphasis on lighting, architectural photography, slidemaking, color transparencies and color prints.

DESN 355 Motion Design (4)
Prerequisite: DESN 263.
This course explores the principles of design through motion, with an emphasis on effective use of typography, graphical elements, sound and motion within time and space. Students learn how to import projects, create narrative structures, storyboard, output for various devices and problem solve moving image concerns.

DESN 360 Publication Design (4)
This course covers principles of design, typography, and the use of graphic files, in both print and digital publication. Professional desktop publishing software and common web design software are used. Emphasis is on skills required for basic literacy as well as the effective design of common formats such as brochures, newsletters, books and web pages.

DESN 363 Visual Communication Design 2 (5)
Note: in order to receive the Visual Communication Design degree, students must earn at least a 3.0 grade in this class.
Prerequisite: DESN 243 and DESN 263 with a grade of 3.0.
This course focuses on the interaction of type and image in the visual communication design process. An introduction to form and composition will be achieved through a sequence of design projects that emphasize compositional structure. The goal of class projects is the development of complex, cohesive visual systems using traditional production skills, design processes and specialized computer applications.

DESN 366 Production Design (4)
Prerequisites: DESN 263.
This course provides students with theory, knowledge and skill of production design for both print and web application. Students gain conceptual understanding and practical skill in areas including color management, print production and web graphics such as banners and videos.

DESN 368 Web Design I (4)
This course covers professional web design addressing modern technologies, processes and techniques. Students work with current web technologies, while preparing for future web enabled devices, or the progressive enhancement approach. Technologies will include HTML(5) and CSS(3).

DESN 374 Brand Thinking and Service Design (4)
Prerequisite: DESN 348.
This course explores the research and strategies of service design and brand development. Through case study research, students come to understand what constitutes a successful brand and how shared community experiences are created.

DESN 375 Digital Video (4)
Prerequisite: DESN 216.
This course offers an introduction to digital video techniques. Students will be introduced to production, editing, theory and practical application for the creation of effective visual communication solutions. Emphasis will be on the creative application of concept and design for the moving image and understanding how to integrate textual, graphical and audio elements for the successful communication of messages created for CD, DVD and the Web.

DESN 378 Web Design 2 (4)
Prerequisite: DESN 368.
This course covers modern user experience (UX) design, rapid prototyping and modern user interface (UI) patterns. Web programming continues to build upon HTML(5), CSS(3) and the addition of JavaScript frameworks to complement the progressive enhancement approach. This course continues the foundations set by DESN 368.

DESN 385 Advanced Digital Sound (4)
Prerequisite: DESN 275.
This course provides in-depth experience in digital sound creation and editing techniques, along with related hardware and software. Topics include live and studio recording techniques, multi-track project recording, mixing and mastering, and the design and creation of sound tracks, including music, to support and enhance typical media productions. Collaborative and individual projects will be required.
DESN 463  Visual Communication Design 3 (5)
Prerequisites: DESN 243; DESN 363 with ≥ 3.0.
This course continues the study of visual communication design, combining theoretical studies with applied projects. It emphasizes awareness of contemporary visual culture through analysis of a wide range of design examples and continued refinement of perceptual, problem-solving and creative skills. Students employ effective design processes and solutions for issues and topics relevant to contemporary visual communication design practice.

DESN 468  Web Design 3 (4)
Prerequisite: DESN 378.
Web Lab is a project- and team-based course focusing on the design and development of experimental websites and web applications. Students are introduced to responsive web design processes, techniques and technologies. Design addresses the challenges of mobile interactions and evolving mobile devices.

DESN 471  Senior Exhibition (1)
Cross-listed: ART 471.
Note: must be repeated three times for credit.
Prerequisites: senior standing and declared BFA in VCD major.
This course entails the individual preparation and presentation of work for senior exhibition.

DESN 474  Advertising Concepts (4)
Prerequisite: DESN 363 and DESN 368.
This course covers principles of advertising design, specifically developing advertising concepts. Open to students in visual communication design, journalism and marketing programs.

DESN 480  Professional Practice (4)
Prerequisite: senior standing.
Professional Practice is the study of the visual design industry from both the agency and freelance perspective.

DESN 490  Senior Capstone (4)
Prerequisites: senior standing; DESN 243, DESN 363, DESN 368.
Satisfies: senior capstone university graduation requirement.
This course expands on previous visual communication design knowledge and skills and also emphasizes communication, collaboration and presentation skills. In teams, students work on a comprehensive design project for a community partner which emphasizes design research and the design processes that lead to creative conceptualization and final design solutions. Students are expected to demonstrate sophisticated design decisions and appropriate design solutions that show a high level of expertise and achievement.

DESN 491  Senior Project (1–10)
Note: graded Pass/Fail.
Prerequisites: senior standing, permission of the instructor.
Independent and/or group study and production of a design project.

DESN 493  Portfolio (2)
Note: may be repeated for credit up to three times.
Prerequisites: DESN 463.
In this course, students have the opportunity to develop portfolio quality work. Emphasis is placed upon content and concept development, problem solving, formal solutions, statements of objectives and presentation.

DESN 495  Internship (2–6)
Note: graded Pass/Fail.
Prerequisites: junior standing; permission of instructor, department chair and college dean.
An internship is on-the-job-training. It exposes students to the professional environment through outside job opportunities in graphic design studios, advertising agencies, corporate communications departments and other acceptable organizations. Students work under the guidance of art directors, creative directors, senior graphic designers or marketing communication managers and perform creative work that is educational and meaningful for their short-term academic goals as well as their long-range career preparation.

DESN 496  Experimental (1–6)
DESN 497  Workshops, Short Courses or Conferences (1–6)
DESN 498  Seminar (1–6)
DESN 499  Directed Study (1–6)
Prerequisites: permission of instructor, department chair and college dean.

There are two kinds of light—the glow that illuminates, and the glare that obscures.
—James Thurber, writer and cartoonist (1894–1961)