

Bachelors of Science Degree, Industrial Design

Background Knowledge and Skills Needed by Graduates:

A bachelor's degree in industrial design, architecture, or engineering is required for most entry-level commercial and industrial design positions. Many candidates in industrial design also pursue a master's degree in order to increase their employment opportunities. Creativity and technical knowledge are crucial in this occupation. People in this field also must have a strong sense of the esthetic—an eye for color and detail and a sense of balance and proportion. Designers must understand the technical aspects of how the product functions. Despite the advancement of computer-aided design, sketching ability remains an important advantage. A good portfolio—a collection of examples of a person's best work—often is the deciding factor in getting a job.

Bachelors of Fine Arts or Bachelors of Science degrees in industrial design are granted at many colleges and universities, and in private art and design schools. Baccalaureate curriculum includes principles of design, sketching, computer-aided design, industrial materials and processes, manufacturing methods, and some coursework in engineering, physical science, mathematics, psychology, and anthropology. Many programs also include internships in design or manufacturing firms.

Commercial and industrial designers also may pursue a master's degree in industrial design. With the growing emphasis on strategic design and how products fit into the overall business plan, an increasing number of designers are pursuing a master's degree in business administration in order to gain valuable business skills. Also, a growing number of professionals in other industries, such as marketing and information technology, are entering the industrial design field by pursuing advanced degrees in design.

Employers increasingly expect new designers to be familiar with computer-aided design software as a design tool. Designers must also be creative, imaginative, and persistent and must be able to communicate their ideas in writing; visually, and verbally. Because tastes in style can change quickly, designers need to be well read, open to new ideas and influences, and quick to react to changing trends. Problem-solving skills and the ability to work independently and under pressure also are important traits. People in this field need self-discipline to start projects on their own, to budget their time, and to meet deadlines and production schedules.

As strategic design becomes more important, employers will seek designers with project management skills and knowledge of accounting, marketing, quality assurance, purchasing, and strategic planning. Good business sense and sales ability also are important, especially for those who freelance or run their own business.

Eight Essential Competencies

1. Knowledge of the design and creative process and the principles of design
2. Understanding how products work and how they are made (manufacturability)
3. Ability to use appropriate tools, materials, and techniques

4. Communication
5. Business practices and the practice of design
6. Problem solving and synthesizing to external requirements
7. Understanding end user or human factors and creating the user interface
8. General Education

Note that each of these competency areas are closely related to the competencies identified by NASAD (National Association of Schools of Art and Design) for Industrial Design programs.

Program Exit Competencies

Upon successful completion of this program, the student should be able to:

Essential Competency: Knowledge of Design Principles and Creative Process

- *Generate technically accurate drawings using perspective*
- *Investigate and apply the various components of the design process using the principles and elements of design*
- *Develop and apply appropriate design forms with regard to a product's aesthetic character*
- *Exhibit knowledge of history and evolution of industrial design*
- *Articulate and solve basic problems of form and function*
- *Distinguish the relative aspects of color perception as they apply to solving design problems*
- *Define and apply design-related terminology*
- *Develop the ability to critique appropriate application of color*
- *Apply appropriate creative graphic solutions to design problems*
- *Demonstrate craftsmanship (organization, neatness, precision)*
- *Demonstrate basic drawing skills*

Essential Competency: How Products Work; How They Are Made

- *Exhibit a working knowledge of manufacturing materials and process*
- *Integrate interdisciplinary skills to achieve a successful project*

Essential Competency: Tools, Materials and Techniques

- *Operate both a MAC and PC Computer using current operating system interfaces*
- *Use and manage computer hardware peripherals for input, output and storage*
- *Create a simple web page*
- *Manage and organize files*
- *Demonstrate computer literacy*
- *Use equipment and materials of the industrial design profession safely*
- *Demonstrate appropriate use of equipment and materials*
- *Select and apply appropriate visual elements*
- *Define, apply and use the appropriate reference to specific design-related terminology*
- *Develop the ability to critique in relation to the fundamentals of design*

Essential Competency: Communications

- *Generate 2D representations which exhibit active investigation of specific design concepts*
- *Generate 3D representations which exhibit active investigation of specific design concepts*
- *Communicate technical information*
- *Communicate concepts and requirements to stakeholders in the design process*
- *Recognize the importance of accepting input and feedback in the design process*
- *Incorporate critical evaluation of self and others into portfolio projects*
- *Identify the visual language of design*
- *Follow oral and written communication*

Essential Competency: Business Practices

- *Prepare for the responsibility of a position in the field of through participation in a work experience*
- *Describe business practices of*
- *Identify key elements of product marketability*
- *Accept the obligations of the collaborative work force*
- *Demonstrate an awareness of the social, cultural and ethical ramifications of design*
- *Identify key legal issues including intellectual property laws, contracts, negotiations and product liability*
- *Assess personal strengths and weaknesses*
- *Present a portfolio and articulate strengths*
- *Design personal letterhead and business cards for self-promotion*
- *Critique and evaluate potential portfolio projects*
- *Conduct research related to the job search and career development, using a variety of resources*
- *Examine and differentiate personal and career goals*
- *Identify career paths and salaries*
- *Select and apply various management strategies in business situations*
- *Apply basic business principles to the creation and maintenance of a business*
- *Apply legal principles to the formation, operation, and termination of sole proprietorships, partnerships, and corporations*
- *Explore the opportunity and the operation of a freelance business*
- *Develop a code of business and personal ethics*
- *Apply time-management skills*
- *Act in a professional manner appropriate to the work environment*
- *Develop a professional work ethic*
- *Maintain a code of professional ethics*
- *Participate in collaborative work*
- *Cultivate and implement critical thinking skills*
- *Apply technical and creative skills in a professional setting*
- *Develop professional awareness of professional standards*
- *Develop a professional awareness through research and networking*
- *Manage time and budget*
- *Analyze, prioritize, and sequence project tasks*

Essential Competency: Problem Solving and Synthesis

- *Support design projects by effective research*
- *Analyze research data to define the project parameters to establish the basis for developing design concepts*
- *Explore multiple design alternatives and synthesize the concepts into feasible solutions*
- *Evaluate viability of design concepts and solutions based on prescribed objectives and criteria*
- *Solve problems in 2D design*

Essential Competency: End User Studies, Human Factors and User Interface

- *Design efficient, effective and safe products; systems and environments that address the needs of diverse populations*
- *Apply a user-centered approach to design problems that incorporate principles of psychology and human interaction with products*
- *Develop an awareness of cultural differences as they effect design*

Essential Competency: General Education

The Art Institutes' programs meet exit competencies in the area of General Education that meet or exceed those required by our accreditation agencies.