

# School of Design

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## Design at Carnegie Mellon

Design is the thoughtful activity that humanizes our environment through visual communication and the shaping of products that help us in our daily lives. Whether in magazines and books, posters and exhibitions, video and film, human-computer interactions, or any of the myriad of everyday products such as furniture, consumer goods, vehicles, or medical equipment, designers play an important role in shaping the form and content of our experience.

Designers are concerned with aesthetics, but they are equally concerned with serving people. This requires more than skill in the fine arts. It also requires knowledge about the needs, desires, expectations, and capabilities of human beings. It requires skills of observation and interpretation that help us understand the people that we want to serve. More than this, however, designers must also understand the technological issues that stand behind effective products. They must understand the materials, tools, and production processes of the modern world. An education in design is an education for the mind as well as the eye and hand.

The emphasis in the School of Design is on professional preparation for an increasingly complex world in which design is an integrative discipline that supports the quality of human interaction in daily life. Designers must be able to integrate aspects of aesthetics and form giving, the social and behavioral sciences, natural sciences, and engineering. In addition, designers must be able to work effectively in teams of experts with specialized knowledge drawn from many disciplines. Therefore, the vision of design operating behind the School of Design contrasts sharply with visions that seek to reduce design to a fine art, a branch of engineering, or an area of the social sciences. The central theme of the School is communication and human experience. This reflects a new humanistic vision of design in the contemporary world, where a premium is placed on the designer's ability to invent, judge, make decisions, and evaluate for the purpose of improving the quality of life. For the design school at Carnegie Mellon, design is a new liberal art of technological culture.

The School offers two majors in design, with corresponding design minors programs.

## B.F.A. in Communication Design

The goal of the Communication Design program is to prepare students with an understanding and mastery of the principles, theories, and skills of communication design. We define communication design as the effective presentation of ideas and information by means of type and image, whether in the traditional medium of print or the new digital medium that supports interactive computer display, multi-media communication technology, and information systems. What is common to the range of experiences in the program is a problem-solving approach to effective and expressive communication, with a special concern for the human being who will be touched by the communication artifact. We emphasize a design practice that is informed with an understanding of the social and cultural dimensions of communication, along with an appreciation of the power of words, images, sound, and movement. This is a forward looking program. While we foster a respect for the rich history of book, letterform, and print design, we are also fascinated with the potential that technology and new theories of human-machine interaction hold for the design of future modes of communication.

## B.F.A. in Industrial Design

The goal of the Industrial Design program is to equip designers for a world that places a high value on the quality of human interactions. We all need products, devices, and designs that support and enhance these exchanges. To this end, we emphasize a design process strongly flavored by user testing, observation, and modeling, while preserving the richness of the visual and formal traditions in the field. The program approaches a balance by speaking clearly to several issues in the design process: how we understand the diverse qualities and needs of human beings, how we respond to those qualities and needs, how we make creative applications of appropriate technologies, how we gain a

perspective on the place of design in the economic and social life that is characteristic of contemporary culture, and how we expand our awareness of the place of design in history and in shaping the future.

## Design Minors Program

The School also offers a minor in Communication Design and a minor in Industrial Design for well-qualified students. Further information on minors programs is provided earlier in the catalog.

## The Design Curriculum

The design curriculum is for students who are interested in a full-time undergraduate study leading to entry-level professional employment or advanced graduate study in the areas of Communication Design or Industrial Design. The first year is a period of discovery, where students in both majors explore studio projects and supporting courses in the ideas and methods of design practice as well as courses in design studies. The second and third years are a period of concentration and development primarily within the student's major. The fourth year is a period of integration and advanced study, with studio projects involving teams of students from both majors as well as students from related fields. There are studio courses throughout all four years, supported by departmental electives in the ideas and methods of design practice and other courses in the history, theory, and criticism of design. In addition, the School also requires all students to take a substantial number of general education courses offered by other departments throughout the university. General education is an essential part of the education of a professional designer.

## The First-Year Experience: Discovery

The first-year program in design provides a broad base for later specialization. Students are introduced to the three main tracks of the department: studio experience, ideas and methods of design practice, and design studies in history, theory, and criticism. Students are exposed to fundamental design processes, techniques, and ideational methods. They learn new ways of seeing and understand-ing familiar objects, of drawing and visualizing ideas and concepts, and how to use all of the resources of design to give form to ideas. Faculty members review each student's progress at the end of every semester. Faculty members also counsel students regarding both personal interests and educational objectives, so that a wise choice may be made between majoring in communication design or industrial design. In addition, students also take courses outside of the School for a sound general education.

This is the first-year curriculum for all design students.

### First Year

	Fall	Units
Studio		
51-101	Design Studio I	9
Ideas and Methods		
51-121	Design Drawing I	9
Design Studies		
51-171	Human Experience in Design	9
General Education		
76-101	Interpretation & Argument	9
85-100	Introduction to Intelligence	9
99-101	Computing @ Carnegie Mellon	3
	Spring	Units
Studio		
51-102	Design Studio II	9
Ideas and Methods		
51-122	Design Drawing II	9
51-132	Introduction to Photographic Design	9
Design Studies		
65-100	Critical History of the Arts	9
General Education		
79-104	Introduction to World History	9

## The Second- and Third-Year Experience: Concentration and Development

Following the first-year program, students enter one of the professional design majors: communication design or industrial design. Each option is built around six semesters of required and elective courses, covering the sophomore, junior, and senior years. The courses pose increasingly complex design problems similar to those faced by professional designers. They require students to use all of their creative, technical, and theoretical skills. In addition to studios, each option also requires a series of ideas and methods courses and a series of design studies courses covering design history, theory, and criticism as well as issues of professional practice. Students are also required to take general education courses to gain a broad vision of many disciplines and fields of knowledge that are relevant to design.

### Communication Design

This is the second and third-year curriculum for students in communication design, with required courses noted in bold type and other available courses (often open to students of industrial design as well as communication design) noted in regular type. While required courses must be taken in proper sequence, other available courses may be taken later, when the student's schedule permits. Please see the course descriptions section for a complete listing of design courses.

#### Second Year

	<b>Fall</b>	<b>Units</b>
Studio		
51-201	Basic Typography: CD Studio I	9
Ideas and Methods		
51-203	Communication Design Computer Lab	3
51-241	How People Work: Human Factors	9
51-229	Digital Photographic Imaging	9
Design Studies		
51-271	Design History I	9
General Education		
xx-xxx	Academic Elective	9

	<b>Spring</b>	<b>Units</b>
Studio		
51-202	Intermediate Typography: CD Studio II	9
Ideas and Methods		
51-222	Color and Communication	9
51-224	Digital Prepress Production	9
Design Studies		
51-272	Design History II	9
General Education		
xx-xxx	Academic Elective	9

#### Third Year

	<b>Fall</b>	<b>Units</b>
Studio		
51-301	Advanced Typography: CD Studio III	9
Ideas and Methods		
51-321	Photography and Communication	9
51-323	Drawing and Communication	9
51-327	Web Design	9
51-333	Poster Design	9
Design Studies		
51-371/398	Topics in Design Studies	9
Other		
51-399	Junior Independent Study	var.
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9

	<b>Spring</b>	<b>Units</b>
Studio		
51-302	Typography IV	9
Ideas and Methods		
51-324	Basic Prototyping Methods (for Communication Design)	4.5
51-330	Photo Book Design	9
51-350	Visualization	9
Design Studies		
51-372/398	Topics in Design Studies	9
Other		
51-399	Junior Independent Study	var.
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	18

### Industrial Design

This is the second and third-year curriculum for students in industrial design, with required courses noted in bold type and other available courses (usually open to students of communication design as well as industrial design) noted in regular type. While required courses must be taken in proper sequence, other available courses may be taken later, when the student's schedule permits. Please see the course descriptions section for a complete listing of design courses.

#### Second Year

	<b>Fall</b>	<b>Units</b>
Studio		
51-211	Generation of Forms: ID Studio I	9
Ideas and Methods		
51-241	How People Work: Human Factors	9
51-243	Basic Prototype Methods (mini 1)	4.5
51-251	Digital Prototyping (mini 2)	4.5
Design Studies		
51-272	Design History II	9
General Education		
xx-xxx	Academic Elective	9

	<b>Spring</b>	<b>Units</b>
Studio		
51-212	The Meaning of Forms: ID Studio II	9
Ideas and Methods		
51-242	How Things Work: Mechanics and Electronics	9
51-246	Photo-Documentation for Industrial Design	4.5
Design Studies		
51-274	Design and Social Change	9
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	3-9

#### Third Year

	<b>Fall</b>	<b>Units</b>
Studio		
51-311	Product Design: ID Studio III	9
Ideas and Methods		
51-341	How Things are Made: Production Methods	9
51-327	Web Design	9
Design Studies		
51-371-398	Topics in Design Studies	9
Other		
51-399	Junior Independent Study	var.
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9

<b>Spring</b>		<b>Units</b>
Studio		
51-312	Products in Systems: ID Studio IV	9
Ideas and Methods		
51-344	Adv. Digital Prototyping	6
51-346	Production Prototyping	6
51-350	Visualization	9
Design Studies		
51-371-398	Topics in Design Studies	9
Other		
51-399	Junior Independent Study	var.
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9

## The Fourth-Year Experience: Integration and Advanced Study

In the senior year, the studio experience is primarily about team projects. These projects typically involve cooperation with an external sponsor or client, with a combination of communication designers and industrial designers working in teams. The client agrees to participate as an information source, consultant, and project critic. All members of the team typically work on different aspects of a complex problem which is defined in conjunction with the client. Individual initiative and self-pacing are essential, but frequent group discussions and client reviews keep each student accountable to the team.

This is the fourth-year curriculum for all students, with required courses noted in bold type and other available courses (usually open to students of both communication design and industrial design) noted in regular type. Each senior signs up for one senior project in each semester.

### Fourth Year

<b>Fall (Choose one project.)</b>		<b>Units</b>
Studio		
51-403	Sr. Project: Interaction Design	12
51-405	Sr. Project: Communication Design	12
51-407	Sr. Project: Product Design	12
51-409	Sr. Project: Environmental Design	12
Ideas and Methods		
51-421	Visual Interface Design	9
51-423	Design Computing	9
51-433	Advanced Interaction & Visual Interface	9
51-451	Fundamentals of Joinery and Furniture Design (I)	9
51-441	Product Planning & Development	4.5
51-426	Letterpress & Bookbinding	9
Design Studies		
51-471	Issues of Professional Practice	9
51-441	Product Planning & Development	4.5
Other		
51-499	Senior Independent Study	var.
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	9
<b>Spring (Choose one project.)</b>		<b>Units</b>
Studio		
51-404	Sr. Project: Interaction Design	12
51-406	Sr. Project: Communication Design	12
51-408	Sr. Project: Environmental Design	12
51-414	Sr. Project: Integrated Product Development	12
Ideas and Methods		
51-426	Letterpress and Bookbinding	9
51-452	Furniture Design (II)	9
51-424	Interactive Programming for Design	9
51-428	Time, Motion & Communication	9
Design Studies		
51-472/398	Topics in Design Studies	9
Other		
51-499	Senior Independent Study	var.
General Education		
xx-xxx	Academic Elective	9
xx-xxx	Free Elective	18

## Other Requirements

General education courses should be selected from other departments throughout the university. Students are strongly advised to select a balanced set of general education electives—in addition to Interpretation and Argument, World History and Introduction to Intelligence— from three broad areas of study: arts and humanities, social and behavioral sciences, and natural sciences and engineering, including mathematics. Specific recommendations (and general requirements) for electives in all of these areas are available from advisors in the School of Design. The School places strong emphasis on the value of general education for personal growth as well as professional development. General education electives allow a student to obtain a minor in another department or program, such as business, engineering, professional and technical writing, or architecture.

Students may enroll for no more than 18 units of independent study courses, and no more than one independent study per semester. A minimum 3.0 GPA is required for independent study. Independent study is permitted only in the third and fourth years of the program. Proposals for independent study courses must be developed jointly by the student and a faculty advisor. Guidelines are available from the School.

A minimum GPA of 2.0 is required to maintain Professional Program status. Grades lower than "C" in required Design courses will result in academic probation, suspension, or drop from the School of Design.

Full-time students are required to enroll for a minimum of 45 units per semester (typically five courses). The minimum number of units required for graduation in Design is 360.

## Standards

The design curriculum adheres closely to the fundamental professional entry-level standards established by the two leading national design organizations: the American Institute of Graphic Arts (AIGA) and the Industrial Designers Society of America (IDSA). The curriculum is accredited by the National Association of Schools of Art and Design (NASAD).

## Applications

The School of Design accepts applications from students who are completing secondary education or who wish to transfer from within Carnegie Mellon University. The School also accepts applications from students who wish to transfer from other institutions. Students applying for the program are asked to either 1) submit a portfolio or 2) complete a design project (available as a PDF on the Design web site) as evidence of design ability. This is considered in balance with evidence of academic ability, based on secondary school grades, SAT scores, class rank, and letters of recommendation. The School also accepts applications for the design minors program for a limited number of spaces. Details are available from the design office.

## Faculty

ERIC ANDERSON, Associate Professor of Design — M.A., Ohio State University; Carnegie Mellon, 1998—.

MARK BASKINGER, Assistant Professor of Design — M.F.A., University of Illinois; Carnegie Mellon, 2003 —.

DANIEL BOYARSKI, Professor of Design — M.F.A., Indiana University; School for Design, Kunstgewerbeschule, Basel, Switzerland; Carnegie Mellon, 1982—.

CHARLEE MAE BRODSKY, Professor of Photography — M.F.A., Yale University; Carnegie Mellon, 1978—.

WAYNE CHUNG, Associate Professor of Design — MID, University of the Arts; Carnegie Mellon, 2007—.

SHELLEY EVENSON, Associate Professor of Interaction Design — B.S. Ohio State University; Carnegie Mellon, 2003 —.

JODI FORLIZZI, Associate Professor, joint faculty in Design and Human Computer Interaction Institute — MDes, Carnegie Mellon University; Carnegie Mellon, 2000 — .

BRUCE HANINGTON, Associate Professor of Design — Master of Environmental and Industrial Design, University of Calgary; Carnegie Mellon, 1998—.

KRISTIN HUGHES, Associate Professor of Design — M.F.A., Virginia Commonwealth University; Carnegie Mellon, 2001— .

MARK MENTZER, Professor of Drawing — B.F.A., Carnegie Mellon University; Carnegie Mellon, 1975—.

THOMAS L. MERRIMAN, Teaching Professor in Design — B.F.A., Carnegie Mellon University; Carnegie Mellon, 1985—.

STACY ROHRBACH, Assistant Professor of Design — MGD, North Carolina State University; Carnegie Mellon, 2003 — .

STEPHEN J. STADELMEIER, Associate Professor of Design — M.S., Cornell University; Carnegie Mellon, 1977—.

ROBERT O. SWINEHART, Professor of Design — M.F.A., Northern Illinois University; Carnegie Mellon, 1974—.

DYLAN VITONE, Assistant Visiting Professor — M.F.A., Massachusetts College of Art; Carnegie Mellon, 2004—.

JOHN ZIMMERMAN, Associate Professor, joint faculty in Design and Human Computer Interaction Institute — MDes, Carnegie Mellon University; Carnegie Mellon, 2002 — .

#### Adjunct Faculty

MATT BEALE, Adjunct Assistant Professor — B.F.A., University of Michigan

VICTORIA CROWLEY, Adjunct Instructor — B.F.A., Carnegie Mellon University

KAREN MOYER, Adjunct Associate Teaching Professor — B.F.A., Philadelphia College of Art; Carnegie Mellon, 1978—.

EDWARD PETROSKY, Adjunct Instructor

MYRNA ROSEN, Adjunct Instructor

MATTHEW SASS, Adjunct Instructor — B.F.A., Carnegie Mellon University

LISA VITALBO, Adjunct Instructor — B.F.A., Carnegie Mellon University

#### Courtesy Appointments

RANDY PAUSCH, Associate Professor and Co-Director of the Entertainment Technology Center — Ph.D., Carnegie Mellon University.

JONATHAN CAGAN, George Tallman Ladd Professor of Mechanical Engineering — Ph.D., University of California Berkeley.

#### Special Faculty

JOSEPH M. BALLAY, IDSA, Professor of Design, Emeritus — M.F.A., Carnegie Mellon University; Carnegie Mellon, 1970—2002.

EDWARD FISHER JR., Associate Professor of Design, Emeritus; Carnegie Mellon, 1965–1988.

HOWARD WORNER, Associate Professor of Design, Emeritus.