School of Design

Bruce Hanington, Head
Location: Margaret Morrison Carnegie Hall 110
design.cmu.edu (http://design.cmu.edu)

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 undergraduate program enables students to develop specialized skills in the areas of Product (Industrial) Design, Communication (Graphic) Design and Design for Environments (design for physical and digital environments), while providing them with a solid foundation in design studies. Students study systems thinking; the ability to see and solve problems at multiple levels of scale, and situate their work within larger social and environmental contexts.

The over-arching theme of the curricula is design for interactions, which acknowledges that ‘ecologies’ of products and communications often come together within complex physical and digital environments. Coursework balances making and theory with the integration of new, emergent technologies. Students are encouraged to explore the scope of design as well as the responsibility and ethics involved in the design of interactions between people, the built world, and the environment.

The curriculum is one that provides students with the ability to customize their degree: they may choose to specialize in one of three areas offered (Products, Communications, Environments), but also have the option of combining any two, to create a unique, interdisciplinary design degree.

The undergraduate curriculum also introduces students to three important areas of design focus: design for service, design for social innovation and transition design. These represent both new and established design approaches to framing and solving problems. In their senior year, students bring their disciplinary specialty (communications, products or environments) to projects that are situated within the areas of design for service and/or design for social innovation.

The School offers a Bachelor of Design with tracks in Communications, Products, or Environments.

Communications

The ability to communicate and shape meaning is one of the most powerful and ubiquitous forms of design in today’s world. Students learn to design effective communications across a wide variety of media that always exist within complex webs of interactions between people, products, and environments. Areas of study include narrative and storytelling, information design, and a variety of analog and digital visualization techniques. Students develop the ability to identify specific audiences and communicate to them through effective visual, verbal and aural communications that educate, inform and delight.

They study the dynamic and ‘emergent’ characteristics of communications in a globally networked society where technologies and modes of individual and mass communication are constantly changing. Students learn systems thinking and engage in an iterative, multi-disciplinary and collaborative design process that involves research, observation, prototyping and rigorous evaluation. Students develop the ability to identify and communicate to specific audiences through effective visual and verbal communications that educate, inform, delight and invite participation.

Products

Students learn to design products and their interactions within the context of human needs and they develop a deep understanding of the ways in which products shape behavior. Our curriculum acknowledges that no product exists in isolation—it is always part of a larger system comprised of people, communications and environments. Within the context of design for service, products exist as ‘touchpoints’ in a service ecology. For this reason, students learn systems thinking and engage in an iterative, multi-disciplinary and collaborative design process that involves research, observation, modeling/prototyping and rigorous evaluation.

Students are introduced to current production and manufacturing processes as well as sustainable approaches, such as cradle-to-cradle, lifecycle analysis and the use of new, more environmentally friendly materials. The School has a well-equipped analog and digital prototyping facility where students work with traditional materials such as wood and metal and learn to design and prototype using CAD software and 3D digital printers.

Environments

Students learn to design for complex environments that exist in the digital, physical and multi-modal realms. Most of the products and communications we interact with are situated within complex physical spaces (our homes, classrooms, places of business, shopping malls, even amusement parks). We also interact with complex online environments such as large websites, social networking and virtual reality environments. And increasingly we interact in ‘smart’ physical spaces with multi-modal communications in a combination of the analog and the digital.

In our curriculum, environments are seen as integrated and dynamic systems that require the design of interactions at multiple levels of scale. Students acquire a diverse set of skills that includes a deep understanding of spatial relationships, designing with and for emerging, multi-media technologies and an understanding of the cognitive challenges presented by multi-modal spaces.

Students who focus on the design of environments delve deep into systems thinking and systems dynamics and spend time learning to collaborate and lead within multi-disciplinary teams (solving large problems involving complex spaces almost always involves teams of people from different disciplines).

Design Minor Program

The School also offers a minor in Design for well-qualified students. Further information on the minor program is provided here (https://design.cmu.edu/node/122/).

The Design Curriculum

Minimum units required for Bachelor of Design 360

The design curriculum is for students who are interested in full-time undergraduate study leading to entry-level professional employment or advanced graduate study in the areas of Communication Design, Product Design, or Design for Environments. The first year is a period of discovery, where students 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 area(s) of specialization. The fourth year is a period of integration and advanced study, with studio projects involving teams of students from all areas of design. 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.

Foundation Year

In their freshman year, students are introduced to all three areas of design specialty: Product (Industrial), Communication (Graphic) and digital and physical Environments. Here, they explore these unique and complementary areas of design and gain a wide range of skill sets such as systems thinking, iterative process, collaboration and visualization, and work in both two and three dimensional materials as well as digital media.

At the end of their freshman year, students are given the opportunity to begin to focus their interests in two of three design areas (products/communications/environments) and will eventually decide upon a single area of focus or a dual path of study.

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

Fall
Studio
51-101 Studio: Survey of Design Units 10
Ideas and Methods
51-121 Visualizing Units 10
Design Studies
51-171 Placing Units 10
General Education
76-101 Interpretation and Argument Units 9
85-102 Introduction to Psychology Units 9
or 85-211 Cognitive Psychology Units 9
or 85-241 Social Psychology Units 9
99-101 Computing @ Carnegie Mellon Units 3

Spring
Studio
51-102 Design Lab Units 10
Ideas and Methods
51-122 Collaborative Visualizing Units 10
51-132 Introduction to Photo Design Units 10
Design Studies
51-172 Systems Units 9
General Education
79-104 Global Histories Units 9
or 76-241 Introduction to Gender Studies Units 9

Second Year

Following the first-year program, students select two out of three areas of interest: Products[P], Communications[C], Environments[E]. In the fourth semester students select one of the two areas to study more deeply. They design products, communications, and environments that function as cohesive systems that live within the built and social worlds. They design products, communications, and environments that function as cohesive systems that live within the built and social worlds.

Second Year

Fall
Studio
51-225 Communications Studio I: Understanding Form & Context Units 4.5
or 51-245 Products Studio I: Understanding Form & Context Units 4.5
or 51-265 Environments Studio I: Understanding Form & Context Units 4.5
Ideas and Methods
51-227 Prototyping Lab I: Communications (Pick two corresponding labs) Units 4.5
or 51-247 Prototyping Lab I: Products Units 4.5
or 51-267 Prototyping Lab I: Environments Units 4.5
51-221 Color for Communications, Products, Environments Units 9
or 51-229 Digital Photographic Imaging Units 9
or 51-242 How Things Work: Mechanics and Electronics Units 9
Design Studies
51-271 How People Work Units 9
General Education
xx-xxx Academic Elective Units 9

Spring
Studio
51-228 Communications Studio II: Designing Communications for Interactions Units 9
or 51-248 Products Studio II: Designing Products for Interactions Units 9
or 51-268 Environments Studio II: Designing Environments for Interaction Units 9
Ideas and Methods
51-208 Research Methods Units 4.5
51-239 Prototyping Lab II: Communications Units 9
or 51-249 Prototyping Lab II: Products Units 9
or 51-269 Prototyping Lab II: Environments Units 9
Design Studies
51-272 Cultures Units 4.5
General Education
xx-xxx Academic Elective Units 9

Third Year

In the fifth and sixth semesters, students may choose to continue their fourth semester area of focus, or they may choose to study their second area of study from the third semester. Students study how design functions at various levels of scale and degrees of complexity situated in specific contexts. They design products, communications, and environments that function as cohesive systems that live within the built and social worlds.

Third Year

Fall
Studio
51-323 Communications Studio III: Designing for Complex Communication Systems Units 9
or 51-343 Products Studio III: Designing for Complex Products Systems Units 9
or 51-363 Environments Studio III: Designing for Complex Environment Systems Units 9
Ideas and Methods (Select one Design Elective)
51-321 Design Center: Photographic Narrative Units 9
51-231 Design Center: Calligraphy I Units 9
51-349 Visual Notation/Journaling Units 9
51-322 Advanced Digital Imaging Units 4.5
51-359 Tools for UX Design Units 9
51-324 Basic 3D Prototyping Units 4.5
51-355 Experimental Sketching Units 4.5
51-399 Junior Independent Study Var.
51-341 How Things are Made Units 9
Design Studies
51-371 Futures I Units 4.5
51-373 Futures II Units 4.5
General Education
xx-xxx Academic Elective Units 9
xx-xxx Free Elective Units 9

Spring
Studio
51-330 Communications Studio IV: Designing Communications for Social Systems Units 9
or 51-350 Products Studio IV: Designing Products for Social Systems Units 9
or 51-360 Environments Studio IV: Designing Environments for Social Systems Units 9
Ideas and Methods (Select one Design Elective)
51-322 Advanced Digital Imaging Units 4.5
51-329 Design Center: UX for Digital Systems Units 9
51-344 Advanced Digital Prototyping Units 6
51-346 Production Prototyping Units 6
Spring

Fall
Studio
- 51-481 Design Research Studio 12

Ideas and Methods (Select one Design Elective)
- 51-441 Foundation of BME Design 6
- 51-451 Fundamentals of Joinery & Furniture Design (I) 9
- 51-499 Senior Independent Study Var.
- 51-376 Semantics & Aesthetics 4.5
- 51-385 Design for Service 9
- 51-382 Design Center: Design for Social Innovation 9
- 51-377 Design Center: Sensing Environments 9
- 51-471 Design Center: Imaginaries Lab: Research through Design 9

General Education
- xx-xx Academic Elective 9
- xx-xx Free Elective 9

Spring
Studio
- 51-480 Design Capstone Project: Service Design & Social Innovation 12

Ideas and Methods (Select one Design Elective)
- 51-374 Preparing for Design Practice 9
- 51-427 Advanced Book Arts Workshop 9
- 51-434 Experimental Form 9
- 51-442 BME Design Project 9
- 51-499 Senior Independent Study Var.
- 51-486 Designing Experiences for Learning 9
- 51-396 Design Center: Design for Climate Change 9

General Education
- xx-xx Academic Elective 9
- xx-xx Free Elective 9

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—additionally to interpretation and argument, global histories and introduction to psychology—from three broad areas of study: arts and humanities, social and behavioral sciences, and natural sciences and engineering, including mathematics. While free electives may include studio courses in other departments, academic electives are non-studio (lecture) courses in other departments. Specific recommendations (and general requirements) for electives in all of these areas are available from advisors in the School of Design.

Academic 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 (IDISA).

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 submit a digital portfolio 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 on the Design website.

Faculty

ERIC ANDERSON, Associate Professor – M.A., Ohio State University; Carnegie Mellon, 1998–

MARK BASKINGER, Associate Professor – M.F.A., University of Illinois; Carnegie Mellon, 2003–

CHARLEE MAE BRODSKY, Assistant Professor – Ph.D, MIT; Carnegie Mellon, 2019–

STUART CANDY, Associate Professor – Ph.D, University of Hawaii at Manoa; Carnegie Mellon, 2017–

JONATHAN CHAPMAN, Professor – Ph.D, University of Brighton; Carnegie Mellon, 2017–

WAYNE CHUNG, Associate Professor – MID, University of the Arts; Carnegie Mellon, 2007–

DINA EL-ZANFALY, Assistant Professor – Ph.D, MIT; Carnegie Mellon, 2019–

BRUCE HANINGTON, Professor & Head of School – M.E.Des., University of Calgary; Carnegie Mellon, 1998–

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

TERRY IRWIN, Professor – M.S., Schumacher College; Carnegie Mellon, 2009–
DAN LOCKTON, Assistant Professor – Ph.D, Brunel University; Carnegie Mellon, 2016–
DAPHNE PETERS, Assistant Teaching Professor – M.Des., Elisava, Escola Superior de Disseny; Carnegie Mellon, 2017–
STACIE ROHRBACH, Associate Professor – M.GD, North Carolina State University; Carnegie Mellon, 2003–
PETER SCUPELLI, Associate Professor & Nierenberg Chair – MDes & Ph.D, Carnegie Mellon; Carnegie Mellon, 2011–
KYUHA SHIM, Assistant Professor – M.F.A., Rhode Island School of Design; Carnegie Mellon, 2015–
STEPHEN J. STADELMIEIER, Associate Professor – M.S., Cornell University; Carnegie Mellon, 1977–
MOLLY WRIGHT STEENSON, Associate Professor – Ph.D, Princeton University; Carnegie Mellon, 2015–
ANDREW TWIGG, Assistant Teaching Professor – B.A., Allegheny College; Carnegie Mellon, 2014–
DYLAN VITONE, Associate Professor – M.F.A., Massachusetts College of Art; Carnegie Mellon, 2004–
MATT ZYWICA, Associate Teaching Professor – B.F.A., University of Illinois; Carnegie Mellon, 2014–

Emeriti Faculty
ROBERT O. SWINEHART, Professor Emeritus – M.F.A., Northern Illinois University; Carnegie Mellon, 1974-2010–

Special Faculty
GIDEON KOSSOFF, Special Faculty – Ph.D, University of Dundee, Scotland; Carnegie Mellon, 2017–

Courtesy Appointments
DARAGH BYRNE, Associate Teaching Professor – School of Architecture & the Integrated Innovation Institute,
JONATHAN CAGAN, George Tallman Ladd Professor of Mechanical Engineering – College of Engineering,
JODI FORLUZZI, Professor & Director – Human-Computer Interaction Institute,
STEFAN GRUBER, Associate Professor – School of Architecture,
SUGURU ISHIZAKI, Associate Professor of Rhetoric and Visual Design – Department of English,
DAVID S. KAUFER, Professor of English and Rhetoric – Department of English,
GOLAN LEVIN, Professor & Director of Frank Ratchye Studio for Creative Inquiry – School of Art,
CAMERON TONKINWISE, Professor of Design Studies – University of Technology Sydney,
JOHN ZIMMERMAN, Associate Professor – Human-Computer Interaction Institute,

Adjuncts of Practice
VICTORIA CROWLEY, Independent Design Consultant
ASHLEY DEAL, Dezudio