Inciting Criticality in Design Education: How We Teach History to Product Design Students

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The undergraduate education of a product or industrial designer in the United States is contentious and constantly evolving. While every product design program sets out to develop a curriculum that teaches students how to solve problems, develop forms, conduct research, understand different materials, identify historical context, and think critically; the curricula, pedagogy and content that is delivered to the student varies from institution to institution (NASAD, 2017). Since the beginning of industrial and product design education in the late 19th century, art and design history have been considered essential to the practitioner. Some approaches to teaching history have included presenting a canon of "great works" (providing a deep knowledge base for their field of study), exposing the complexities in the social and political contexts in which design is produced, and offer a chronological understanding of design evolution as to evoke a critical point of view in the design student (Williams & Rieger, 2015). Despite the importance of history to the design student, the courses are perceived as a chore, often prompting the students' response, "What is the value in it" (Lichtman, 2009).

Central to my research are a few questions: are the methods we employ in teaching design history—including curricular structure and pedagogical techniques used inside the classroom- creating a barrier between the course objectives and the students' ability to take anything away from these classes? How do these delivery mechanisms affect the design practitioner's ability to learn history in a way that adds to them developing as critical designers? In the vast range of content in object history, which content establishes the right connective tissue with practice based coursework, which content connects students with social and cultural considerations important to them? Does the way we teach history enable heuristic skills that can be transferred to critical making? Is the sequencing of such courses in curricula effective in promoting knowledge transference between classes, or is coursework siloed?

Context: History of Design Education & its Relationship to Critical Studies

In the years following the Industrial Revolution, the intellectual conception of a design was no longer exclusively tied to the ability to make, such as in guild or apprenticeship system before it. Thus, elements of education shifted to the "conception and planning" to prepare graduates for the professional competencies required by a newly industrialized world, introducing the liberal arts (Giard, 1990). However, throughout the 20th century- the liberal arts components of a designer's education were either suppressed or intentionally eliminated, due to the involvement of industrialists (who favored vocational training to serve capitalist interests) as well as the U.S. import of a Modernist pedagogy from the Bauhaus (which eliminated "traditional copyist histories/BeauxArts" along with any other opportunities to teach it in a new way) thus stunting the methodological development of how history is taught to designers for well over a century. Several experiments in design pedagogy were attempted,

such as University of Chicago's Walter Sargent, who helped develop an "industrial arts" degree. Inspired by John Dewey's "learning by doing"- he heavily favored seminars, or active learning, over lecture, or passive learning, enabling students to create meaning of historical material rather than being told information to recite on a test (Jaffee, 2005). "Learning by Doing" is a common approach in the design studio- another aspect that Sargent was acutely aware of as he took an aggressive approach to teacher training for his schools—teaching all faculty methods of practice, history and theory, as he states: "..by training teachers in history, theory and practice of the arts- [they can then] be able to present art in such a way that it will enter the daily lives of students" (Chicago Tribune, 1927). This deliberate, interdisciplinary approach to teaching (which aimed at helping students think across courses and skills) saw successful results, with record number of students registered for history electives in the third year of the new curriculum in 1927 (Jaffee, 2005). However, following Sargent's untimely death, his successor returned to a more traditional approach, separating history and studio coursework.

Similarly, the Bauhaus affiliate, Lazlo Moholy-Nagy, attempted on several occasions to develop a meaningful way to teach history and theory to his students during his tenure at IIT. However, he was met with opposition as the Board of Directors, comprised of Industrialists and capitalists in Chicago. Moholy-Nagy frequently opposed the industrialists pigeon-holed view of education to produce "bread winning" designers- stating in his book *Vision in Motion*.

> *"To be well educated today one must have memorized the seemingly useful experiences of the past in order to be able to repeat them mechanically on the proper occasion...They are the prototypes of an education which advertises learning through quantitative verbal information, turning away from the practice of self-experience and self-expression." (pg. 22)*

He lost this battle, with the industrialists favoring more traditional approaches which taught history that inspired "copyism" or "the greats". It was this version of history teaching that Walter Gropius, founder of the Bauhaus, aimed at eliminating in his revolutionary Bauhaus pedagogy, stating that it inspired "fixed ideas of what art is and that they have ceased to think of it as to be freely approached and recreated by them." However, this sentiment too, would hurt design education's development – for his influence in design education allowed design schools to reject the need for history courses, and in years following his influence (when history became required for accreditation for product design) this void was filled with art history, superficially marrying art history's content and methods to the training of design students- a problem still widely seen in education today.

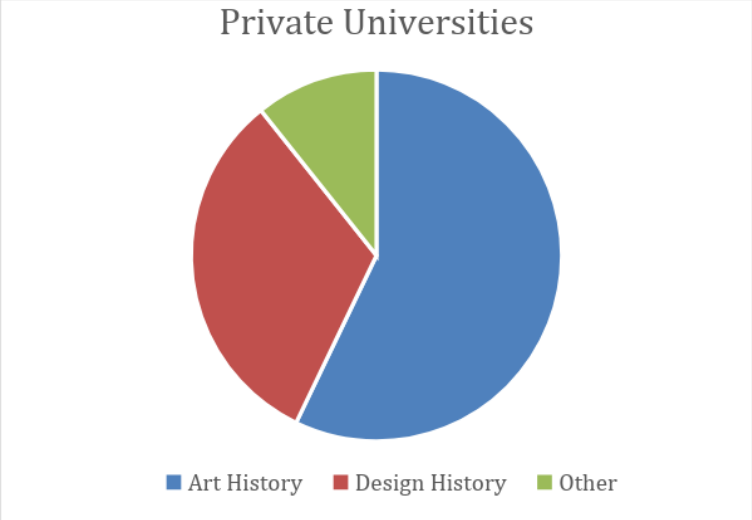


*Figure SEQ Figure * ARABIC 1: Art History vs Design History in required coursework at Private Schools*

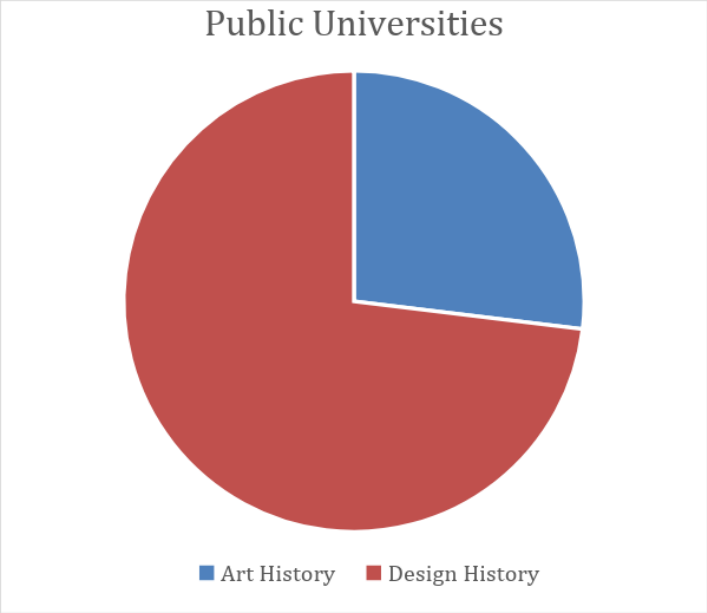
In a survey of 10 private design schools' curricula, there were 28 identified required history courses. Of these courses, 57% are art history and 32% are design history focused (Fig. 1). This is a problem because as we train students, the importance of design history is negated by its lack of curricular presence (for an outline of required history courses found in these designs programs, please refer to TABLE 1). While more history courses may be taken by a student in their liberal arts electives, required history courses "may be the only time students are introduced to historical content," revealing how different schools identify adequate foundational knowledge of historical content.

Art history, while extremely important, doesn't serve all the considerations that a designer must understand— such as the histories of technological advancements, intellectual property, manufacturing techniques and conversely labor ethics, commodity culture, how national and cultural identities are conveyed in everyday objects, gendered design, advertising histories that prey on aspirational conditions of class, and the adverse effects of excess design on the environment— resulting in a universal cry for sustainable practices.

Design history courses aim to elucidate some of the aesthetic, economic and technological forces at work that shape our own opinions of "good" design- and without it- students have less awareness of how and why they, society or designers at large discern certain design as "good" and some not. Hin Brenderick (a Bauhaus graduate, author and notable Industrial Designer whose work is in the MoMA) states:

> *"There is always some agency operation...which will determine the outcome, form wise or other. But such an agency does not necessarily represent the designer as manipulator of the materials...But it is precisely the aim of design education to impart to the student the means of achieving authority and command in order to gain ascendancy over the accidental...Therefore, the extent to which a student succeeds in his design depends largely on the attainment of knowledge and understanding." (pg. 16-17)*

However, what is interesting is that public institutions, almost the exact opposite occurred, of 26 identified required history courses, only 26% were art history focused, whereas 74% were design history specific (Fig. 2).



This could be symptomatic of what other scholars have addressed as design programs being "a child of art school," and therefore suffering under the curricular "hand me downs" from art schools— for a BFA constitutes as 6 of the 10 degree programs in product design at the top private schools, but only account for (1) in the top public schools. Public schools' curricula could be reflective of being rooted in professional education, modeling coursework off engineering and medicine programs. Product and industrial design programs have a unique distinction of being equally housed within engineering schools, fine arts schools, design schools and liberal arts school.

Figure 2: Art History vs Design History in required coursework at Public Schools

Another consideration in the teaching of history to design students that could aid in the training of more critical designers is the pedagogy and assessment that happen inside the history classroom. Without needing to tie history courses directly to studios, practices inside of the classroom can inform how the students mobilize the information presented. I Interviewed 3 design history professors: David Raizman (Drexel University, Art Historian), Matthew Bird (Rhode Island School of Design, Industrial Designer), and David Brody (Parsons School of Design, American Studies Scholar). These case studies were chosen specifically because they come from three different backgrounds and therefore approach the history classroom differently, providing comparisons for some critical questions surrounding the role of history in a designer's education.

When evaluating this qualitative data set- I used theories from student centered learning principles. As previously mentioned, John Dewey's "learning by doing", which stressed "education based upon experience" is an important pedagogical philosophy in evaluating history course room tactics (Dewey, 1938). As well as related education theories, such as constructivist pedagogy, which stresses that "knowledge is anchored and indexed by relevant contexts. Knowledge construction is stimulated by a question or need or desire to know" (Marra, Jonassen, & Palmer, 2014. Pg 223). Finally, I also used

ideas put forth in problem based learning, which Marra, Jonassen & Palmer (2014) explain the benefits of:

> *"PBL proponents posit the centrality of problems in learning. That is, learning is initiated by an authentic, ill-structured problem. Ill-structured problems are those that have multiple or unknown goals, solution methods, and criteria for solving them. In PBL-based classes, students encounter the problem before learning. This approach is countered by centuries of formal education practice, wherein students are expected to "master" content before they ever encounter a problem and attempt to apply the content to it."(pg 223)*

As a framework, studio based practice in design education rests heavily on exploring what one could call an "ill structured" problem. Ideally, knowledge shared in other coursework that surrounds the studio courses would be integrated into those studios, where a student can use new knowledge to activate critical understandings and mobilize knowledge learned from other coursework. However, faculty who are unaware of surrounding coursework aren't actively encouraging cross-curricular knowledge sharing. Secondly, the means in which knowledge is assessed and mobilized in liberal arts classes could cause a disconnect in how to use such knowledge— if a student thinks how one uses history is related to memorization of facts, they are unlikely to use history to assess larger critical issues in design making since their education had not shown or exposed them to this link. Education is vital not only in establishing a designerly value system, but nurturing and evolving it through the teaching of both practical skills and liberal arts. If "learning by doing" has been revered by educational theorists and is the basis of studio coursework- what is the doing inside of history classrooms?

In David Brody's Objects as history, he deliberately ties lessons of antiquity to modern day experiences, as a way to engage the student. Rooting the initial exposure of a historical concept in tandem with contemporary issues, it positions new lessons near existing knowledge of current day issues or topics that students, in some way or another, are already familiar with. Excerpted from his syllabus, the following weeks speak to this practice well:

Week 1: "The First Tools vs. the Personal Computer"

Week 5: "Classical Greece and Rome & Representing the Body Today"

Reading:

"Hottentot in the Age of Reality TV: Sexuality, Race, and Kim Kardashian's Visible Body," Celebrity Studies 5 (2014): 123-137."

This approach is supported by theories in constructivist pedagogy as well as theories put forth by Dewey (1938), that insists that new knowledge be anchored in existing experiences.

David Raizman uses provocations relating to current day issues in an activity he uses to open each class with - a series of questions for discussion, answered together or in group work. He then uses the group's answers to tailor his lectures to the specific interests of the responses- making his history flexible and specific to each student group that comes in and "not to predetermine the direction of the presentation and the use of class time." To avoid what he calls "receptive mode," these tactics of open ended questions to tailor the lecture was one that had positive success, as Raizman says he was "encouraged by it, the main difference is that I think that I engage more the class." He notes that these questions are under constant evolution, that they are "moving targets". While these discussion tactics may sound obvious, for a course that's pedagogically meant to give coverage to a historical time period, this is quite reflective in practice- especially considered how the majority of lecture surveys operate.

This reveals Raizman as identifying specific "pedagogical content knowledge", which is defined by Lee Shulman (1986) as "An understanding of what makes the learning of specific topics easy or difficult; the conceptions and preconceptions that students of different ages and backgrounds brings with them to learning new topics"

Matthew Bird, a RISD professor and industrial designer by training, takes a unique approach to his classroom that's driven from his experiences as a practitioner. He has the benefit of working with students in their design studios and often relates the history lessons back to their work- making the connective tissue between historical lessons and critical issues in the studio practice more apparent. Bird also deliberately shows videos of manufacturing before any lecturing on styles, believing that the manufacturing techniques are not only relevant lessons on technological progress, but also as a tactic to engage students attention, citing these as some of the times they are most engaged in class. Furthermore, he teaches design as a verb rather than a noun, and requires drawings to be turned in each week in response to the lecture, citing: "It really activates your understanding in a way that no other kind of looking does..no amount of looking on a photograph of something will help you understand the construction." (Bird, 2017) Along these lines, Bird has developed a research assignments that has returned really impressive results, *40 Questions to Ask an Object* (Fig. 3).

From this exercise, turned in in parts over the course of the semester, he states that it balanced giving students the freedom to explore an object outside of the canon— objects that mattered to them— but gave them a structured approach to a meaningful investigation, as he states: "..it forced them to really do a deep dive into research techniques and into sources of information that they never would have bothered with..people were doing patent researches and looking at ads as primary sources!"

While I was TA-ing, these kinds of issues became evident. As a lecture/recitation format, students were assessed with exams - and even though the recitations were meant to incite discussion around topics covered in the lecture, they turned mostly into "what are the right answers for the exam?" It was disheartening- one student even referred to the discussion as "pointless opinions" and wanted to focus on what was the "correct" answers. However, as a project, there was a successful design driven project that spoke to the heuristic skills of designers- which I saw tremendous criticality in.

History of Industrial Design
Spring 2017
Matthew Bird

40 Questions to Ask an Object
Worth up to 250 points

Overview:
This project is designed to help you experience a thorough research process, conduct a design analysis, and become familiar with a topic in a meaningful and layered way. If you are confused about any of the questions, maybe referring to the example will help clarify the intent.

Assignment:
Select a manufactured object created before 1990.
Objects must be designed for use, made in multiples, and perform a function (so, for example, not a sculpture whose "use" is to be pretty)
Email your choice to mbird@risd.edu for approval.
Use the questions below to steer an investigation of your object.

Phase 1 (Due March 20, up to 65 points):
Understand the Object
(the center of this cross-shaped investigation)
Find up to four images of the object.

Describe the basics of this object:
1. What is it?
2. What is it called?
3. When was it made?
4. Where is or was the object available?

Describe what it looks like (Formal Analysis):
5. What are the parts?
6. How are the parts composed (consider line, shape, form, balance, emphasis/focus, movement, pattern, repetition, unity)?
7. What materials are used?
8. What colors are used?
9. What textures are used?

Describe what this object does (Functional Analysis):
10. What does it do?
11. How does it work?
12. Does it also have a social function?
13. Does it have a patent?
14. Is it used conspicuously or privately?

Describe the user:
15. Who is the user?
16. What is specific about the user (consider geography, social class, income, gender, ability, age, etc.)?
17. Are there unintended or other users?

Describe the designer:
18. Who designed this object?
19. Is there team of designers?
20. Where was it designed?
21. Is the designer also the producer?

Describe production:
22. Who produced it?

Figure 3: Matthew Bird's "40 Questions to Ask an Object"

This format of appealing to the heuristic skills of design students, as Matthew Bird does with his 40 Questions to Ask an Object and sketching assignments, pedagogically resonates with students, citing that this project was "extremely important to inform studio work' and "excellent additions to studio" (Lichtman, 2009). In its open-ended, problem based provocation that is related to their practice in studio coursework, this assignment also resonates with problem-based-learning and constructivist pedagogy. In my personal experience, this enabled student to have the larger conversations that history aims to incite, they used design provocations promoted by social concerns elucidated in Lichtman's lectures. For example, one of my students, Rose Kramer, redesigned the Joseph and Meeks Broadside- exploring the notion of consumer advertisement in promoting the objects made in the paradoxical philosophies of Morris and Ruskin, titled "Objects for the Wealthy & Design Conscious in the 21st Century." Kramer explains:

> *"The concept of joy in labor that Morris and Ruskin laid out in the 1800s is now referred to in 2016 as artisan; objects like Mast Brothers Chocolate and Mansur Garvriel handbags take mundane items but return craftsmanship to them and charge a high price... there has been a resurrection of these concepts once again as it shows just how important history, and design history is to our everyday lives. Another one of my favorite items is probably the Tesla car, as I think the intention of the car is to create an honest and truly good product...although many of the intentions of these designs are inclusive, the consequences or outcomes of them is very exclusive."(Fig. 4)*

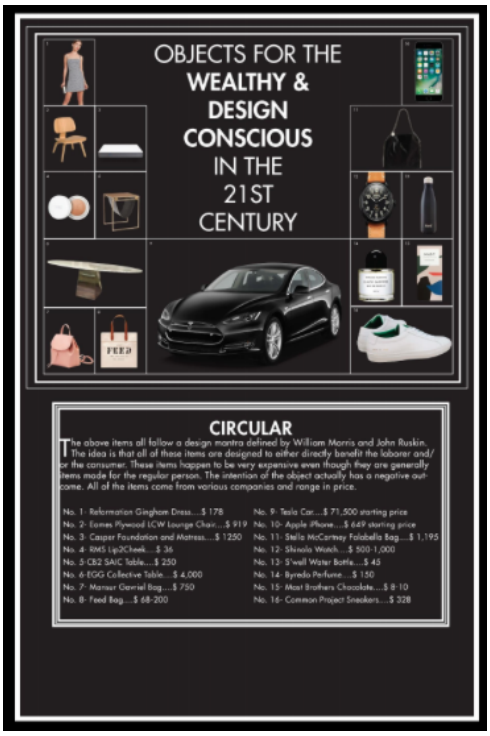


Figure 4: Rose Kramer's deliverable for Sarah Lichtman's class "History of Modern Design 1850-2000".

These kind of design oriented assignments are a bridge to what may be a better alternative for engaging with material in history courses as well as assessment. In addition to tapping into heuristic skills and aptitudes, it mobilizes the learning differently as a student moves through the course. A student who listens to lectures to criticality design an object that speaks to lessons from history, as opposed to listening to lectures to be tested for content coverage for an exam, will listen and process identical content in two very different ways (Wiggins & McTighe, 2008).

Another major consideration for the design history classroom is the content covered, which can connect and disconnect students equally. A prevalent theme in critical design history discourse—as well as many other fields of aesthetic histories— is who is defining "good"? Whose history are we teaching and what are the goals of that canon? What is implied about the objects that aren't included in the canon? What professions are we favoring in established narratives and who has had access to training in those fields? It has been argued, that since all value judgements of establishing a good design canon is inevitably "a reflection of the individual" and their taste, is the exercise of even compiling a canon of good design, pedagogically appropriate? However, others have argued that the canon that establishes "good" relates to design practice in that "the practice of every form of design relies upon being able to make critical judgments about quality" (Forty, 1995) and therefore, "quotidian is indeed of less interest than the exceptional" (Dilnot, 2009).

The most obvious issue in the established canon is the lack of representation within established histories of "good design", with most of the canon being made up of white, western, men. As higher education, and design schools attempt to become more diverse in their populations, so must their required history canons. Surveys that seek to elucidate "a canon of exemplary works" suggests that what isn't in that survey isn't considered good, or at least less valuable, than the presented march of "great designers" content. Cheryl Buckley's "Made in the Patriarchy," serves as a seminal text that directly addresses the lack of female representation in design history canons because of "selection, classification, and prioritization of types of design" (pg. 11). Since writing this text in 1989, feminist analysis of design histories has become more common, however other marginalized groups are still fighting for a representation in histories that are required by design degrees. Students of color (Black, Latino, and other non-white cultures) are disconnected from the material, as it features oppressive forces that they seek to overcome- that of a patriarchal, white society determining what is tasteful and on an even deeper level, determining "the codes or signs by which design is understood and constituted" (Buckley, 1989). This, in turn is perpetuates and acts as the value system that their work in studio is judged- "against the dominant meta-history of Western design"- a value that the history course upholds (Banu, 2009).

TABLE 1

School	Semester (8 semesters)	Title of Required Courses
California College of the Arts (CCA)*	1	**Introduction to the Arts: Antiquity to Early Modern**
	2	**Introduction to the Modern Arts**
BFA Industrial Design	3	**History of Industrial Design**
	1/2	Writing 1/Writing 2
	3	Foundations in Critical Studies
Carnegie Mellon*	2	Global Histories

BID - Bachelors in Industrial Design	1	*Design Studies:* Placing (Comparing contrasting home and new area)
	1	Interpretation and Argument (art of crafting arguments from critical resources)
	2	*Design Studies:* Systems (design in ecologies/socio technical regimes.)
	3	*Design Studies:* How People Work (Lecture & Reading heavy, emotional, cognitive and physical understanding of humans)
	4	Research Methods
	4	*Design Studies:* Cultures
	5	*Design Studies:* Futures
	6	*Design Studies:* Persuasion
Pratt Institute*	1	Themes in Art & Culture I (retains Art & Architecture themes)
BID - Bachelors in Industrial Design	2	Themes in Art & Culture II
	3	History of Industrial Design
	1/4	Literary and Critical Studies 1, Literary and Critical Studies 2
	7	Design Theory & Research
PARSONS*	1/2	Objects as History

BFA Product Design	3	History of Design 1850-2000
	1/2	Integrated Seminar 1, Integrated Seminar 2
	4	Intro to Design Studies
	7	Advanced Research Seminar: Constructed Environments
Savannah College of Art & Design* ***BFA Industrial Design***	1/2	Survey of Western Art I
	2/3	Survey of Western Art II
	3/4	20th Century Art (no required design history)
	½	Speaking of Ideas
	1/2	English Composition
RISD* ***BFA Industrial Design***	1	History of Art + Visual Culture
	2	Topics in History, Philosophy + The Social Sciences
	4	History of Industrial Design
	1	First Year Literature Seminar
MICA*	1/2	Art Matters
	3	Modernism & After

BFA Product Design	3/4	Intellectual History 1
	3/4	Intellectual History 2
	1	Critical Inquiry
[Art Center College of Design]* **BS Industrial Design**	2	Intro to Modernism (History Course- but more broad in content)
	3	History of Industrial Design
	1	Writing Studio
[Otis College of Art & Design]* ***BFA Product Design***	2	Birth of Modern
	3	History of Product Design
	4	Contemporary Issues
	1	Writing in the Digital Age
	1	Introduction to Visual Culture
	2	Ways of Knowing
[Drexel University]*	1	History of Art II: Renaissance to Romanticism ARTH
	2	History of Art III: Modern Art ARTH
	1/2	History and Analysis of Product Design PROD

BS Industrial Design	5+	History of Modern Design ARTH
	1	Composition and Rhetoric 1: Inquiry and Exploratory Research
	2	Composition and Rhetoric 1I: Advanced Research & Evidence-Based Writing
	8	Applied Design Research
University of Cincinnati ***Design, Architecture, Art & Planning (DAAP)*** ***BS Industrial Design***	1	History of Art 1
	2	Sources of Modern Design
	3+	Design History, Theory and Criticism
	1	English Composition
	3	Theory of Industrial Design
Georgia Institute of Technology ***BS Industrial Design***	1	History of Modern Industrial Design ID2202
	4	Art History II COA 2242
	6	Culture of Objects ID 4206
	1 & 2	English Comp 1, English Comp 2
Arizona State University	1	Design Awareness - Surveys "cultural, global & historical context for the design professions" DSC
	5	20th Century Design I

BSD Industrial Design (Ohio State & Penn also offer BSDs)	6	20th Century Design II
	1 & 2	English Comp 1, English 2
	8	Writing for the Professions
Iowa State University ***BID Bachelor's Industrial Design***	2	Design Culture DSN S 183
	5	History of Industrial Design 1 IndD387
	6	History of Industrial Design II
	1	Critical Writing & Communication
	2	Written, Oral and Electronic Communication
Purdue University ***BFA Industrial Design***	3	History of Art Since 1400
	5	New Media Culture
	6	History of Design II
	1	English First year Composition
	2	Fundamentals of Speech
	5	Design Methodology
	5	Seminar on Ideas in Industrial design: Design & Society

	7	Seminar on Ideas in Industrial design: Design & Creative Problem Solving Methods
University of Illinois at Chicago ***BDes Industrial Design***	3	Art History I
	4	Art History II
	5	History of Design I: 1760-1925
	6	History of Design II: 1925-present
	1/2	Academic Writing 1 / Academic Writing II
	1	Design Colloquium
	7/8	Senior Colloquium
Michael Graves College ***BID Industrial Design***	2	Art History I Prehistorica to Middle Ages
	3	Art History II Renaissance to Modern
	6	History of Industrial Design
	1	College Composition
	1	Speech Communication
	2	Intro to Design & Visual Culture
	8	Critical Perspectives

Ohio State University ***BID Industrial Design***	2	Design History
	1	Intro to Design Practice (Theory/Methods Course)
	2/3/4/	Design Research - Taken in Tandem with Studios (like PArsons)
Lawrence Technological University **BS Industrial Design**	1	Art & Design Awareness
	6	Industrial Design History
	1	College Composition
	4	Writing Proficiency Exam
California State University Long Beach **BS Industrial Design**	1	Design History
	8	Hist/Theory of Design, Global Issues
	1	Written Communication
	2	Oral Communication
	3	Critical Thinking

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