

Request for New Degree Program

Graduate

Institution:

Iowa State University

Departments Involved:

Department of Art & Design, Department of Mechanical Engineering, Business

CIP Discipline Specialty Title:

Industrial Design

CIP Discipline Specialty Number:

50.0404

Level

Masters *Masters of Industrial Design*

Title of New Program

Industrial Design

Degree Abbreviation

MID

Approximate Date to Establish Degree

August 2010

Contact Person

Roger Baer **294-6724** **rebaer@iastate.edu**

Please provide the following information

1 Describe the proposed new degree program, including the following

1.a. Brief description of the program, a statement of objectives, including the student learning outcomes and how the learning outcomes will be assessed.

Industrial design is the creation and development of concepts and specifications that optimize the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer. The Industrial Designers unique contribution places emphasis on those aspects of the product or system that relate most directly to human characteristics, needs and interests. This contribution requires specialized understanding of visual, tactile, safety and convenience criteria, with concern for the user. Industrial design links knowledge about technology and the visual arts with knowledge about people.

Industrial Designers Society of America

The Master's Degree in Industrial Design will be a degree which will equip students with the design skills and problem solving methods necessary to create useful, sustainable, socially and culturally relevant products and interactions. It will prepare graduates with a research direction for careers in industry or academia.

Learning outcomes will include:

Students will have an understanding of how products work; how products can be made to work better for people; what makes a product useful, usable, and desirable; how products are manufactured; and how ideas can be presented using state-of-the-art-tools.

Students will have in-depth knowledge of social and cultural issues affecting interactions and product user needs and decisions.

Students will, as the result, have the ability to develop new products and interactions for both specific and broadly based societal needs.

Students will have the knowledge necessary to bring these products and interactions to reality through interdisciplinary collaboration within Iowa State University, and through collaboration with select Industry and Educational partnerships, both within Iowa and worldwide.

Students will have an understanding of the history of Industrial Design, as well as its relation to human factors and user interfaces.

Students will have a functional knowledge of basic business and professional practice.

Students will have working knowledge of computer-aided drafting (CAD), computer-aided Industrial Design (CAID), and appropriate two-dimensional and three-dimensional graphic software.

Students will have the ability to investigate and synthesize the needs of marketing, sales, engineering, manufacturing, servicing, ecological and biorenewable responsibility, and to reconcile these needs with those of the user in terms of satisfaction, value, aesthetics, and safety.

Students will be able to define problems, variables, and requirements; conceptualize and evaluate alternatives; and test and refine solutions through studio-based individual and team learning projects and experiences.

Students will have the ability to communicate concepts and requirements to other designers and colleagues who work with them, to clients and employers, and to prospective clients and employers, by drawing upon verbal and written forms, two-dimensional and three-dimensional media, and levels of detailing ranging from sketch or abstract to fully detailed and specific.

Learning outcomes would be assessed by:

Studio-based and lecture-based metrics for Interaction and Product Design creation and development, as codified by the National Association of Schools of Art and Design, the accreditation body of standing in Industrial Design education.

1.b. The relationship of the proposed new program to the institutional mission and how the program fits into the institution's, college's, and department/program's strategic plan.

This proposed graduate degrees in Industrial Design will integrate science, technology, social psychology, and design. As such they are congruent with the University's mission to provide a venue for collaboration both within our academic community by fostering cross-disciplinary cooperation, as well as outside the University through collaboration with various corporate entities in the State of Iowa and the world beyond its borders.

Within the College of Design in general, and the Department of Art and Design in particular, one of our current goals is to increase our presence outside the University by cooperation with the business community in order to create partnerships that would facilitate additional research possibilities for our students and faculty. Industrial Design in particular is a major that can foster those connections with relative ease. Preliminary discussions have already yielded a number of very positive indications of this potential, and the corresponding revenue streams would be certainly be welcome in the current economic environment.

This interaction with industry professionals, both within the State of Iowa and beyond, could also be effected by strategic collaboration with the various Iowa State University outreach entities already in place, which include CIRAS, the Pappajohn Center for Entrepreneurship, IDRO, and ISU Extension.

1.c. The relationship of the proposed new program to other existing programs at the institution; describe how the proposed program will enhance other programs at the university

Within the College of Design itself, the proposed curriculum offers opportunities for collaboration with Architecture, Graphic Design, Interior Design, Landscape Architecture, and Integrated Studio Arts in ways that are not presently offered except through individual study. The opportunities for in-depth hands-on learning and specialization in any of these fields are quite rich. There are numerous ways that these connections would be significant. The major has strong links with Human Computer Interface, Cognitive Science, and in particular with Graphic Design and its many existing courses in web-design for e-commerce, time-based multimedia, and motion graphics to name but a few. Additionally, many areas of mutual interest between Interior Design and Industrial Design are clearly evident.

The graduate degree also presents the potential to bring together a number of resources available within the University (such as the new Biorenewable Laboratory for the Bioeconomy Institute, as well as Engineering, Psychology, Marketing and Business) with the discipline of the design process in a way that will prove beneficial to all the participants. The unique nature of Industrial Design, which is by definition a synthesis of many individual disparate areas of study, has immense implications for facilitating this interconnectivity.

Through the proposed curriculum with its available minors in Engineering and Business, students will by definition be engaged outside the walls of the College of Design, but the major also presents the chance for faculty as well to collaborate in research with these and other disciplines, in ways that have not been heretofore possible. The fact that these connections could be fostered with no fiscal drain on either entity is also appealing.

On a graduate level the MID degree clearly brings to the table the option of interaction with the Master's Degree program in Graphic Design, with its emphasis on the idea of usability and effective visual communication through the in-depth study of signs, symbols, systems, and the interaction of humans with systems and devices. The Master's Degree program in Interior Design is likewise focused on human factors and the study of humanics, and again the options for study across the disciplines, and mutually enhanced research topics and pursuits are clear.

1.d. The relationship of the proposed new program to other existing programs at other colleges and universities in Iowa; including how the proposed program is different or has a different emphasis than the existing programs.

Industrial Design is not currently offered at any institution of higher education anywhere in Iowa. Students choosing to pursue this increasingly important field must leave the state in order to do so. The closest available programs are at the University of Illinois Champaign/Urbana, the University of Illinois Chicago Circle Campus, the University of Wisconsin Stout, Southern Illinois University, or the University of Kansas. There is no program in Industrial Design in Minnesota, Missouri, North Dakota, South Dakota, Nebraska, Arkansas, and only one in Texas.

1.e. Special features or conditions that make the institution a desirable, unique, or appropriate place to initiate such a degree program.

The College of Design is one of only six design schools in the entire United States with the disciplines of Architecture, Community and Regional Planning, Landscape Architecture, Interior Design, Graphic Design, and Art all under the same roof, and all readily available for interdisciplinary study. From the College's inception, the only major not present in this impressive array of mutually beneficial disciplines is Industrial Design. Its addition to the roster would increase the college's opportunities for research, outreach, professional practice, teaching, and, of course, learning.

In its absence, various degree programs have tried to fill the void, with some success. Notably, Graphic Design has developed interaction design programming at the Graduate level, and Integrated Studio Arts and Interior Design have both pursued courses in the design and fabrication of furniture. Architecture has, likewise encourages students to create products for household use. All of these areas would greatly benefit from the addition of a full-fledged curriculum in Industrial Design.

1.f. Does the proposing institution have the personnel, facilities, and equipment adequate to establish and maintain a high quality program.

The College of Design has most, but not all, of the personnel, facilities and equipment needed to start an Industrial Design program. We imagine a a program that is small, initially, with a first cohort of 3-4 students building to not more than 20 graduates.

Faculty: The college has several faculty who have worked in product development and many who are engaged in interaction design. In addition the Engineering College has faculty with similar interests and several faculty in engineering and design have status as faculty in HCI. The college would need to hire one new tenured faculty member as the Director of this program to initiate and lead the degree programs and engage in industrial design research. Additionally after the second year as the program grows the need for a second faculty member will become necessary.

Facilities: The teaching labs needed to house this program would be 1 studio for the graduate students. We should be able to house these studios in the existing square footage, if we are able to maintain the Armory for the use of the College of Design. The college has a new configuration proposed for the existing model shop and expanded digitally driven machines.

Equipment: We will require an infusion of more rapid prototyping equipment and computer driven equipment. An initial expenditure of approximately \$ 500,000 is estimated for the necessary equipment. The college is currently rewriting the position of support for prototyping and this hire will be made with current funds.

1.g. How does student demand for the proposed program justify its development?

The college routinely receives inquiries from prospective students about Industrial Design. A number of our current students and alumni have completed partial/pseudo-industrial design educations within the existing degree programs because it was their only option. Several of our undergraduate students in various curricula have expressed interest in entering into graduate study and research in Industrial Design.

2 Describe the state and/or national workforce need and/or demand for graduates of the proposed program currently and in the near future (provide documentation about the sources of data used to estimate need and demand).

The U.S. Bureau of Labor Statistics states that the demand for industrial designers outweighs the current supply and is expected to increase due to companies continuing to emphasize the quality and safety of their products. Two of the fastest growing industries for this career path are transportation and medicine. Many employers prefer to hire candidates with experience specifically in industrial design, so at least a bachelor's degree is becoming prerequisite to a career in industrial design.²

Increased demand for industrial designers will stem from four factors. One, people will continue to want safe, good-quality products. Two, consumers will demand new products that are easy and comfortable to use. Three, companies will continue to develop high-technology products in medicine, transportation, and other fields. Four, global competition among businesses will continue to grow. All these factors will spur the demand for industrial designers. In addition, many job openings will result from the need to replace designers who leave the field.³

Many in business and industry have come to realize the critically important contributions of design to business success and industrial innovation. Since 2006, "Business Week" magazine has published an annual issue that focuses on the contributions of the processes and products of industrial design to successful and innovative business. "Fast Company", another business magazine, publishes an annual issue on Design, and has a regular monthly design feature. Consumers and the leaders of commerce understand that the issues of economic, social and environmental sustainability are issues of design.

3 List all other public and private institutions of higher education in Iowa currently operating programs similar to the proposed new degree program. (For comparison purposes, use a broad definitional framework, e.g., such identification should not be limited to programs with the same title, the same degree designation, having the same curriculum emphasis, or purporting to meet exactly the same needs as the proposed program.)

No similar programs exist. See the attached list of programs in the U.S., and refer to 1.d. above.

4. Estimate the number of majors and non-majors students that are projected to be enrolled in the program during the first seven years of the program.

e. Graduate

Graduate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Majors	7	14	20	20	20	20	20
Non-Majors	3	6	10	10	10	10	10

f. What are the anticipated sources of these students?

Current students in the College of Design and ISU are one source of graduate students, including students who do not currently matriculate into one of our existing degree programs. Regional students, from Minnesota, Missouri, the Dakotas, and Nebraska, all states without Industrial Design programs, are likely sources. Texas and Colorado are states that each have one Industrial Design program.

We believe that this graduate degree may be a popular extension for many of our undergraduate majors in the College of Design. It fits well with all our curricula in the college.

If history is a predictor of enrollment then the Industrial Design graduate program will likely be parallel to the Graphic Design graduate program where approximately half of the student population is international. Graphic Design and Interior Design have benefitted from developing MA degrees that prepare a student without a background in design to be successful at the graduate level in a research oriented program. Industrial Design may want to follow a similar course with the MID becoming the terminal degree.

5. If there are plans to offer the program away from the campus, briefly describe these plans, including potential sites and possible methods of delivery instruction.

There are no plans to offer this program away from campus.

6. Has the proposed program been reviewed and approved by the appropriate campus committees and authorities? List them: Listed as the program is reviewed

Art and Design Department Curriculum Committee
 A&D Faculty
 Academic Affairs Council, College of Design
 COD Faculty
 Faculty Senate Graduate Curriculum Committee

7. List date the program proposal was submitted to the Iowa Coordinating Council for Post High School Education (ICCPHSE) and the results of listserve review

(THIS WILL BE FILLED IN BY THE PROVOST OFFICE)

8. Will the proposed program apply for accreditation? When?

NASAD, National Association of Schools of Art & Design, is the accrediting agency for this program and all programs in the Art & Design area. NASAD accredits the institution, the Department of Art & Design has a visit scheduled for the Fall of 2011 and the proposed program can be reviewed for "plan approval" because we will not have three years of graduates at that time.

9. Will articulation agreements be developed for the proposed program? With whom?

None are planned at this time

10. Describe the faculty, facilities, and equipment that will be required for the proposed program.

See attached document "Positioning the Program"

11. From where will the financial resources for the proposed program come*(List all that apply, e.g., department reallocation, college reallocation, grants, new to the university)?*

<i>Need</i>	<i>Sources</i>	<i>Totals</i>
Program Director Position	College Reallocation	80,000
Lab Technician	College Reallocation	45,000
Assistant Professor	Tuition	60,000 Year 3
Lab Equipment	University	500,000 200,000 Year 1 200,000 Year 2 100,000 Year 3

a financial commitment has been made by the Vice Provost for Research and the Provost's Office to assist in the creation of the "Flex-Lab" for use of this program and others in the College of Design.

12. Estimate the total costs/total new costs (incremental increases each year in expenditures) that will be necessary for the next seven years as a result of the new program:

	Faculty	Equipment	Total Costs	Tuition Revenue
Year 1	-80,000	-200,000	-280,000	+ 96, 320
Year 2		-200,000	-200,000	+ 205,037
Year 3	-60,000	-100,000	-100,000	+137,281
Year 4				+137,281
Year 5		<i>a financial commitment has been made by the Vice Provost for Research and the Provost's Office to assist in the creation of the "Flex-Lab"</i>		+137,281
Year 6		<i>for use of this program and others in the College of Design.</i>		+137,281
Year 7				+137,281*

* this figure indicates the amount of tuition revenue after costs, including salary costs for both hires, these figures combine graduate and undergraduate enrollment because the programs will operate in tandem.

Supplemental materials *(to be used at Iowa State University in the review of the proposal):*

13. Program requirements, including:**a. prerequisites for prospective students:**

A professional design degree (BFA, BID, BArch, BLA) or a professional degree in a related field such as engineering design or business / marketing.

b. language requirements;

No language requirements are proposed other than proficiency in English.

c. courses and seminars presently available for credit toward the program;
ArtGR 698, ArtGR 587, ArtGR 588, ArtGR 672, ArtID ???, Art 511, Business, and Engineering

d. proposed new courses or modifications of existing courses;

DsnSt 600 Research Methods

IND 592 (Industrial Design Graduate Studio 1), **IND 573** (Industrial Design Graduate Studio 2),

IND 693* (Industrial Design Graduate Studio 3), **IND 694** (Industrial Design Graduate Studio 4)

* Courses that may be co-taught or shared with the College of Engineering, Graphic Design, Interior Design

e. thesis and non-thesis options in master's degree programs;
The Master of Industrial Design degree will have a thesis/research requirement.

f. implications for related areas within the university;

This degree has the potential to link research in several areas within the College of Design, College of Engineering, and the College of Business. Additionally it has the potential to draw students from a wide geographic area who would not otherwise be interested in Iowa State University. The nature of design practice in the 21st. century is collaborative and this degree has the potential to become one of the most collaborative graduate degrees at Iowa State University.

g. admissions standards for graduate programs

An undergraduate degree in industrial design or a related area. The students will be admitted by the faculty involved in the Industrial Design graduate program. The standards will be determined by the faculty in accordance with departmental admission standards.

14. Attach to the program proposal memos from the department chair(s), the college dean(s), and other appropriate persons, agreeing to the allocation of new resources and/or the reallocation of resources as described in the Regents questions

15. Attach to the program proposal, letters of support, recommendations, and statements when appropriate:

a. from programs at the other Regents universities

b. from programs and departments at ISU which are associated with the proposed program or have an interest in the proposed program.

Proposed Curriculum for Master of Industrial Design MID

Consistent with our other terminal graduate degree programs in the department this degree will include:

* = new classes

History, Theory, and Criticism 12 credits

History of ID	ArtGR 588
History of GD	ArtGR 587
History of Photography	ArtH 596
Seminar	ArtGR or ArtID 698 or InDES 698

Core Classes 33 credits

Studio 1	3 credits	InDES 570 *
Studio 2	3 credits	InDES 571 *
Studio 3	3 collaborative studios between GD/ID/IndD/ Eng/Bus	InDES 670 *
Studio 4	3 collaborative studios between GD/ID/IndD/ Eng/ Bus	InDES 671 *
Option Studios	6 credits	Existing in ArtGR, ArtID or new courses
Research Methods	3 credits	Department or College Class *
Current Issues	3 credits	Departmental Class to be developed *
Teaching Practicum	3 credits	Art 511
Thesis	6 credits	InDES 699 *

Outside of Major Curriculum 12 credits

Business	6 credits	marketing, organizational behavior
Engineering	6 credits	collaborative studios, materials and processes

Electives 6 credits

Total 63 Credits

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Engineering
Office of the Dean
104 Marston Hall
Ames, IA 50011-2151
Phone 515 294-5933
FAX 515 294-9273
www.engineering.iastate.edu

Date: March 24, 2010

To: Dr. Luis Rico-Gutierrez
Dean, College of Design



From: Dr. Balaji Narasimhan
Associate Dean for Research and Graduate Studies
College of Engineering

Re: Proposed Masters Degree in Industrial Design

The College of Engineering administration is supportive of the proposed Master of Industrial Design (MID). Our College Curriculum Committee has discussed this degree program and is in support.

The College of Engineering offers several courses in design and product development, as well as courses in other disciplines, that would be appropriate for fulfilling the credit requirements of the proposed MID program. We look forward to working with your faculty and administration to identify specific courses.

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Office of the Vice President for
Research and Economic Development
2610 Beardshear Hall
Ames, Iowa 50011-2036
515 294-6344
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March 19, 2010

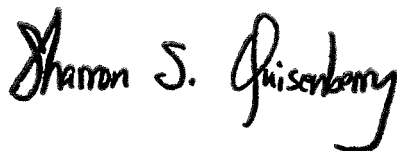
Dr. Luis Rico-Gutierrez, Dean
College of Design
Iowa State University
CAMPUS MAIL

Dear Dr. Rico-Gutierrez:

I strongly support the Industrial Design degrees. The degree programs have the potential to bring together different disciplines across the university and to leverage our traditional strengths in science, technology and design. This will allow students to address research questions that impact directly the quality of all our lives and to improve our interaction with our physical and social environment. Additionally, we expect that industry will be very interested in partnering with the University in our pursuit of a variety of options and explorations these programs will provide. These programs are much in line with the strategic direction of the university outlined by the President and promoted by the 2050 Challenge Task Force Strategic Planning Committee. The College of Design is in the process of developing a plant space to create the necessary infrastructure to ensure the success of the programs, and the Vice President for Research and Economic Development office will invest \$500,000 over the next 3 years to bring in faculty with this expertise.

The new industrial design degrees are forward thinking and will provide students with tremendous opportunities. I urge your serious consideration of the degree programs.

Sincerely,



Sharron S. Quisenberry, Vice President for Research and
Economic Development

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Business
Robert H. Cox Dean's Suite
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515-294-2422
FAX 515-294-6060
www.business.iastate.edu

Date: February 15, 2010

To: Dr. Luis Rico-Gutierrez
Dean, College of Design

From: Dr. Michael Crum
Associate Dean for Graduate Programs
College of Business

Re: Proposed Master of Industrial Design

The College of Business Curriculum Committee voted to support the proposed Master of Industrial Design (MID) at its meeting on February 5, 2010. Additionally, the College of Business administration supports the program.

The College of Business offers several courses in Marketing and Management, as well as courses in other disciplines, that would be appropriate for the six credit hours of business required in the MID program. We look forward to working with your faculty and administration to identify specific courses.