Industrial Design

This section presents the requirements for programs in:

- **Industrial Design B.I.D.**
- **Minor in Design**

Program Requirements

Industrial Design
B.I.D. (20.0 credits)

First Year		
1. 5.0 credits in:		5.0
IDES 1000 [0.5]	Theory and History of Design	
IDES 1001 [0.5]	Industrial Design Analysis	
IDES 1300 [0.5]	Projects IA	
IDES 1301 [0.5]	Projects IB	
ECON 1001 [0.5]	Introduction to Microeconomics	
ECON 1002 [0.5]	Introduction to Macroeconomics	
MATH 1107 [0.5]	Linear Algebra I	
PSYC 1001 [0.5]	Introduction to Psychology I	
PSYC 1002 [0.5]	Introduction to Psychology II	
PHYS 1007 [0.5]	Elementary University Physics I	
Second Year		
2. 4.0 credits in:		4.0
IDES 2101 [0.5]	Design for Manufacturing A	
IDES 2102 [0.5]	Design for Manufacturing B	
IDES 2104 [0.5]	Computer Applications A	
IDES 2105 [0.5]	Computer Applications B	
IDES 2205 [0.5]	Sensory Aspects of Design for User Experience	
IDES 2300 [0.5]	Projects IIA	
IDES 2302 [0.5]	Projects IIB	
IDES 2600 [0.5]	Human Factors/Ergonomics in Design	
3. 1.0 credit in free electives		1.0
Third Year		
4. 2.0 credits in:		2.0
IDES 3310 [0.5]	Projects IIIA	
IDES 3302 [0.5]	Projects IIIB	
IDES 3502 [0.5]	Contextual Nature of Products	
IDES 3601 [0.5]	Research for Design	
5. 0.5 credit in:		0.5
BUSI 2204 [0.5]	Basic Marketing	
6. 1.0 credit in free electives at the 2000-level or above		1.0
7. 1.5 credits from:		1.5
IDES 3107 [0.5]	Design and Sustainability	
IDES 3104 [0.5]	Exhibition Design	
IDES 3105 [0.5]	Visual Communication and Package Design	
IDES 3106 [0.5]	Advanced Computer Applications	
IDES 3202 [0.5]	Advanced Studies in Form and Colour	
IDES 3305 [0.5]	Special Studies	
IDES 3306 [0.5]	Special Studies	
Fourth Year		
8. 3.5 credits in:		3.5
IDES 4001 [0.5]	Industrial Design Seminar	
IDES 4002 [0.5]	Professional Practice	
IDES 4301 [0.5]	Minor Projects	
IDES 4310 [1.5]	Capstone Project	
IDES 4400 [0.5]	Internship Field Report	
9. 1.5 credits in free electives at the 3000-level or above		1.5
Total Credits		**20.0**

Notes:

1. Fourth-year students are required to register in IDES 4301 and IDES 4310 in the same academic year.
2. One successfully completed Industrial Design Co-op work term between the third and fourth year of study is equivalent to IDES 4400.
3. The electives chosen should serve to deepen the student's understanding of fields related to Industrial Design or disciplines that are relevant for industrial designers.

Minor in Design (4.0 credits)

This minor is open to all undergraduate degree students not in the Industrial Design program.

Only students pursuing undergraduate programs requiring at least 20.0 credits to graduate and who have completed at least 4.0 credits toward their degrees with a minimum overall CGPA of 7.00 may be admitted to the Minor in Design.

Students are required to present a Minor CGPA of 4.00 or higher at graduation in order to be awarded a Minor in Design.

1. 1.5 credits in:		1.5
IDES 1000 [0.5]	Theory and History of Design	
IDES 1001 [0.5]	Industrial Design Analysis	
IDES 2205 [0.5]	Sensory Aspects of Design for User Experience	
2. 2.5 credits from:		2.5
IDES 2600 [0.5]	Human Factors/Ergonomics in Design	
IDES 3104 [0.5]	Exhibition Design	
IDES 3105 [0.5]	Visual Communication and Package Design	
IDES 3107 [0.5]	Design and Sustainability	
IDES 3305 [0.5]	Special Studies	
IDES 3306 [0.5]	Special Studies	
IDES 3502 [0.5]	Contextual Nature of Products	
IDES 3601 [0.5]	Research for Design	
IDES 4001 [0.5]	Industrial Design Seminar	
IDES 4101 [0.5]	Adv. Studies in Manufacturing	
IDES 4200 [0.5]	Form Organization	
IDES 4305 [0.5]	Special Studies	
IDES 4306 [0.5]	Special Studies	
3. The remaining requirements of the major discipline(s) and degree must be satisfied.		
Total Credits		**4.0**

Regulations

The regulations presented in this section apply to all students in the Bachelor of Industrial Design program.

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Continuation Evaluation (consult the *Academic Regulations of the University* section of this Calendar).

Year Status and General Prerequisites

In the Bachelor of Industrial Design degree program, year status is defined as follows:

1st year: Admission to the program.

2nd year: Successful completion of IDES 1001 , IDES 1301 and must not be deficient in any more than one of the other first year courses.

3rd year: Successful completion of of IDES 2302 and all first and second year course requirements.

4th year: Successful completion of IDES 3302 and all third year course requirements.

Prerequisites

The following broad course prerequisites specify requirements for access to upper year project courses:

- Registration in IDES 2300 Projects IIA normally requires successful completion of IDES 1001, IDES 1301 and must not be lacking in any more than one of the other **first-year** courses.*
- Registration in IDES 3310 Projects IIIA normally requires successful completion of all **first-year and second-year** core course requirements.*
- Registration in IDES 4310 [1.5] Capstone Project normally requires successful completion of all **third-year** course requirements.*
- *Special consideration and permission may be made in consultation with the School administration.

Academic Continuation Evaluation for the Bachelor of Industrial Design

Students in the Bachelor of Industrial Design degree follow the standard Academic Continuation Evaluation (ACE) regulations (see Section 3.2 of the *Academic Regulations of the University*) with the following additions and amendments.

B.I.D. students are evaluated based on their Overall CGPA, and their performance in Industrial Design Core courses.

INDUSTRIAL DESIGN CORE COURSES	
IDES 1300 [0.5]	Projects IA
IDES 1301 [0.5]	Projects IB
IDES 2300 [0.5]	Projects IIA
IDES 2302 [0.5]	Projects IIB
IDES 3302 [0.5]	Projects IIIB
IDES 3310 [0.5]	Projects IIIA
IDES 4301 [0.5]	Minor Projects

Students in the B.I.D. must achieve a minimum grade of C- in every Core course. If the student earns a grade less than C- in a Core course, they will be given permission to repeat the Core course only when their Overall CGPA meets the minimum required to be *Eligible to Continue* (EC), as described in Section 3.2.6 Minimum CGPA Requirements of the *Academic Regulations of the University.*

1. *Eligible to Continue* (EC) requires an Overall CGPA at or above the minimum requirements for the B.I.D. as described in Section 3.2.6 Minimum CGPA Requirements of the *Academic Regulations of the University*.
2. Students will be placed on *Academic Warning* (AW) when the Overall CGPA is lower than the minimum required for *Eligible to Continue* (EC).
3. Students must leave the Industrial Design program with the decision *Continue in Alternate* (CA) where any of the following conditions apply:
   a. while on *Academic Warning* (AW), the student has failed to achieve the minimum required Term GPA as described in Section 3.2.4.1 Term Grade Point Average;
   b. after a second attempt at a Core course, the student has not achieved a grade of at least C- in either attempt;
   c. the student has not completed the program within seven years.

See the *Academic Regulations of the University* section of the Calendar for additional information.

Co-operative Education

For more information about how to apply for the Co-op program and how the Co-op program works please visit the Co-op website.

All students participating in the Co-op program are governed by the Undergraduate Co-operative Education Policy.

Undergraduate Co-operative Education Policy

Admission Requirements

Students can apply to Co-op in one of two ways: directly from high school, or after beginning a degree program at Carleton.

If a student applies to a degree program with a Co-op option from high school, their university grades will be reviewed two terms to one year prior to their first work term to ensure they meet the academic requirements after their first or second year of study. The time at which the evaluation takes place depends on the program of study. Students will automatically receive an admission decision via their Carleton email account.

Students who did not request Co-op at the time they applied to Carleton can request Co-op after they begin their university studies. To view application instructions and deadlines, please visit carleton.ca/co-op.

To be admitted to Co-op, a student must successfully complete 5.0 or more credits that count towards their degree, meet the minimum CGPA requirement(s) for the student's Co-op option, and fulfil any specified course prerequisites. To see the unique admission and continuation requirements for each Co-op option,

please refer to the specific degree programs listed in the Undergraduate Calendar.

Participation Requirements

Co-op Participation Agreement

All students must adhere to the policies found within the Co-op Participation Agreement.

COOP 1000

Once a student has been admitted to the Co-op Program, they will be given access to register in COOP 1000. This zero-credit online course must be completed at least two terms prior to the student's first work term.

Communication with the Co-op Office

Students must maintain contact with the Co-op Office during their job search and while on a work term. All email communication will be conducted via the students' Carleton email account.

Employment

Although every effort is made to ensure a sufficient number of job postings for all Co-op students, no guarantee of employment can be made. The Co-op job search process is competitive, and success is dependent upon factors such as current market conditions, academic performance, skills, motivation, and level of commitment to the job search. It is the student's responsibility to apply for positions via the Co-op job board in addition to actively conducting a self-directed job search. Students who do not obtain a co-op work term are expected to continue with their academic studies. It should be noted that hiring priority for positions within the Federal Government of Canada is given to Canadian citizens.

Registration

- Students must be registered as full-time during all fall and winter study terms beginning the term in which they enroll in COOP 1000.
- Students will be registered in a Co-op Work Term course while at work. This course does not carry academic course credit, but is noted on academic transcripts.
- Students may register in a 0.5 credit during a work term, provided the course is offered during the evening or is offered asynchronously online.
- Students must have at least one term of full-time studies left to complete following their final co-op work term. Students cannot end their degree on a work term.

Work Term Assessment and Evaluation

Work Term Evaluation

Employers are responsible for submitting to Carleton University final performance evaluations for their Co-op students at the end of their work terms.

Work Term Assessment

In order to successfully complete the co-op work term, students must receive a Satisfactory (SAT) grade on their Co-op Work Term Report, which they must submit at the completion of each four-month work term.

Graduation with the Co-op Designation

In order to graduate with the Co-op Designation, students must satisfy all requirements of the degree program in addition to the successful completion of three or four work terms (the number is dependent upon the student's academic program). Students found in violation of the Co-op Participation Agreement may have the Co-op Designation withheld.

Note: Participation in the co-op option will add up to one additional year for a student to complete their degree program.

Voluntary Withdrawal from the Co-op Option

Students who are currently on a co-op work term or who have already committed to a co-op work term either verbally or in writing may not leave the position and/or withdraw from the co-op option until they have completed the work term and all related requirements.

Involuntary or Required Withdrawal from the Co-op Option

Students may be removed from the Co-op Program for any of the following reasons:

1. Failure to achieve a grade of SAT in COOP 1000;
2. Failure to attend all interviews for positions to which the student has applied;
3. Declining more than one job offer during the job search;
4. Reneging on a co-op position that the student has accepted either verbally or in writing;
5. Continuing a job search after accepting a co-op position;
6. Dismissal from a work term by the co-op employer;
7. Leaving a work term without approval from the Co-op Management Team;
8. Receipt of an unsatisfactory work term evaluation;
9. Receiving a grade of UNS on the work term report.

International Students

All international students are required to possess a Co-op Work Permit issued by Immigration, Refugees and Citizenship Canada before they can begin working. The Co-operative Education Office will provide students with a letter of support to accompany their Co-op Work Permit application. Students are advised to discuss the application process and application requirements with the International Student Services Office.

Co-op Fees

All participating Co-op students are required to pay Co-op fees. For full details, please see the Co-op website.

Bachelor of Industrial Design: Co-op Admission and Continuation Requirements

- Maintain full-time status in each study term;
- Be eligible to work in Canada (for off-campus work);
- Have successfully completed COOP 1000 .

In addition to:

1. Registered as a full-time student in the B.I.D. program;
2. Successfully completed 5.0 or more credits;
3. Obtained an Overall CGPA of at least 6.50 and an Industrial Design Core CGPA least 8.00. These CGPAs must be maintained throughout the duration of the degree.

B.I.D. students must successfully complete three (3) work terms to obtain the Co-op Designation.

Co-op Work Term Course: IDES 3999
Work-Study Pattern:

Year 1		Year 2		Year 3		Year 4		Year 5	
Term	**Pattern**	**Term**	**Pattern**	**Term**	**Pattern**	**Term**	**Pattern**	**Term**	**Pattern**
Fall	S	Fall	S	Fall	S	Fall	W	Fall	S
Winter	S	Winter	S	Winter	S	Winter	W	Winter	S
Summer		Summer	W	Summer	W	Summer	W		

Legend
S: Study
W: Work

Admissions Information

Admission Requirements are for the 2025-26 year only, and are based on the Ontario High School System. Holding the minimum admission requirements only establishes eligibility for consideration. The cut-off averages for admission may be considerably higher than the minimum. See also the **General Admission and Procedures** section of this Calendar. An overall average of at least 70% is normally required to be considered for admission. Some programs may also require specific course prerequisites and prerequisite averages and/or supplementary admission portfolios. Higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. The overall average required for admission is determined each year on a program by program basis. Consult admissions.carleton.ca for further details.

Note: Courses listed as *recommended* are not mandatory for admission. Students who do not follow the recommendations will not be disadvantaged in the admission process.

Admissions Information

Admission requirements are based on the Ontario High School System. Prospective students can view the admission requirements through the Admissions website at admissions.carleton.ca. The overall average required for admission is determined each year on a program-by-program basis. Holding the minimum admission requirements only establishes eligibility for consideration; higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. All programs have limited enrolment and admission is not guaranteed. Some programs may also require specific course prerequisites and prerequisite averages and/or supplementary admission portfolios. Consult admissions.carleton.ca for further details.

Note: If a course is listed as *recommended*, it is not mandatory for admission. Students who do not follow the recommendations will not be disadvantaged in the admission process.

Degree

- Bachelor of Industrial Design (B.I.D.)

Admission Requirements

First Year

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include Advanced Functions and Physics. Design Technology, and Visual Arts courses are recommended.

Candidates must present a portfolio of any kind of work that could demonstrate creativity and aptitude for the study of industrial design. Detailed information about the portfolio requirements can be found at admissions.carleton.ca. Attending an information session at the School is recommended.

Advanced Standing

Applications for admission beyond first year will be assessed on their merits and on space availability in the program. Advanced standing will be granted only for those courses that are determined to be appropriate.

Applicants will also be required to complete a portfolio which will assist in the evaluation of their suitability for the program. Detailed information about the portfolio requirements can be found at admissions.carleton.ca.

Co-op Option

Direct Admission to the First Year of the Co-op Option
Applicants must:

1. meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
2. be registered as a full-time student in the Industrial Design program;
3. be eligible for work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option.

Note: continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

Industrial Design (IDES) Courses

IDES 1000 [0.5 credit]
Theory and History of Design
The theoretical and historical background of industrial design and design; disciplinary foundations and interdisciplinary connections; methodological aspects and economic and social contexts; contemporary scenarios in design; technological innovation and manufacturing processes.
Also listed as ARCH 2006.
Lectures three hours a week.

IDES 1001 [0.5 credit]
Industrial Design Analysis
Principles of comparative product design analysis covering marketing and sales, manufacturing techniques and materials, ambiance and qualities of the object/context relationship, and design analysis from the perspective of the designer, the end-user and the environment.
Includes: Experiential Learning Activity
Also listed as ARCH 2101.
Prerequisite(s): IDES 1000 or ARCH 2006.
Lectures three hours a week.

IDES 1300 [0.5 credit]
Projects IA
An introduction to the skills and processes of industrial design including drawing and sketching as an aid to design, basics of line, shape, ideation, and visualization, product drawing, presentation techniques, basic model making, studio equipment and practices, introduction to the design process.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 1000 (may be taken concurrently).
Studio and lectures six hours a week.

IDES 1301 [0.5 credit]
Projects IB
Aspects of industrial design theory and practice, specifically those dealing with principles of product development, fundamentals of form and colour and case studies. Students will explore the design process with emphasis on creative problem-solving techniques and visual communication in design.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 1300.
Studio and lectures six hours a week.

IDES 2101 [0.5 credit]
Design for Manufacturing A
Transformation techniques applied to manufacturing materials. Part-design requirements and cost factors for manufacturing processes. Influences and role of assembly, finishing, production tooling, and costing.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 1001, IDES 1301.
Lecture and tutorials three hours a week, laboratory three hours a week.

IDES 2102 [0.5 credit]
Design for Manufacturing B
Continuation of IDES 2101. Transformation techniques applied to manufacturing materials. Part-design requirements and cost factors for manufacturing processes. The influences and role of assembly, finishing, production tooling, costing are addressed.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2101 or permission of the School of Industrial Design.
Lecture and tutorials three hours a week, laboratory three hours a week.

IDES 2104 [0.5 credit]
Computer Applications A
Provides industrial design students with working knowledge of design related 2D computer applications, such as graphic manipulation, illustration software, and 2D Computer-Aided Design (CAD). Labs and projects are oriented towards building a foundation in software and group work skills for studio courses.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 1301.
Lecture and tutorials three hours a week.

IDES 2105 [0.5 credit]
Computer Applications B
Provides industrial design students with working knowledge of design related three-dimensional (3D) computer applications, such as solid and surface modelling computer-aided design (CAD) software. Labs and projects are oriented towards building a foundation in software and group work skills for studio courses.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2104.
Lecture and tutorials three hours a week.

IDES 2205 [0.5 credit]
Sensory Aspects of Design for User Experience
An exploration of multi-sensory qualities derived from and designed into products to optimize product-interaction experiences. Visual, tactile, auditory, and other related sensory aspects of design and design principles that contribute to the product multi-sensory characteristics while adding meaning and emotional value.
Includes: Experiential Learning Activity
Precludes additional credit for IDES 2203 (no longer offered).
Prerequisite(s): IDES 1001 or permission of the School of Industrial Design.
Lectures and tutorials three hours a week.

IDES 2300 [0.5 credit]
Projects IIA
Principles of design sketching used in the industrial design process. Topics include: sketching as a tool for problem definition; idea exploration and form development; rendering techniques and the communication of design concepts; basic physical prototyping and modeling-making techniques.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 1001 and IDES 1301, or permission of the School of Industrial Design.
Studio and lectures six hours a week.

IDES 2302 [0.5 credit]
Projects IIB
Introduction to the design principles associated with adapting products to an existing product semantic. Topics covered: principles of design, product semantics, design analysis, design synthesis, design evaluation, and modeling techniques. The design project(s) explore some or all of the design principles covered in the lectures.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2300 or permission of the School of Industrial Design.
Studio and lectures six hours a week.

IDES 2600 [0.5 credit]
Human Factors/Ergonomics in Design
Foundation course in human factors/ergonomics providing an overview of physical and cognitive considerations in product design and related design fields. Anthropometrics, biomechanical considerations, cognition, social interaction, and emotional interaction are introduced in relation to supporting user experience, health and safety, performance and productivity.
Includes: Experiential Learning Activity
Prerequisite(s): PSYC 1001 and PSYC 1002, or PSYC 1000.
Lectures and discussion three hours a week.

IDES 3104 [0.5 credit]
Exhibition Design
Exhibition design is explored through lectures, case studies, field trips and guest lectures. Students participate in exercises and apply design skills to a variety of exhibition design realms. Introduces students to the potential of the built environment for exploring a range of diverse exhibit applications.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2302 or permission of the School of Industrial Design.
Lectures and tutorials three hours a week.

IDES 3105 [0.5 credit]
Visual Communication and Package Design
A survey of visual communication and package design principles relevant to industrial designers. Product/brand definition and corporate identity through package design.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2302 or permission of the School of Industrial Design.
Lectures and tutorials three hours a week.

IDES 3106 [0.5 credit]
Advanced Computer Applications
Examination of complex product geometry utilizing 3D computer applications. Topics include spline, surface and solids construction, surface verification tools, and rendering tools and techniques. Workflow, robust design, reverse design techniques and 3D printing will be explored through exercises.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2105. Third or Fourth Year standing or permission of the School of Industrial Design.
Lecture and tutorials three hours a week.

IDES 3107 [0.5 credit]
Design and Sustainability
Explores the industrial designer's role in creating more environmentally and socially responsible products. Addresses imperatives and drivers for integrating sustainability into products. Includes: sustainable design strategies, strategies and tools, sustainable design business case, circular economy model for designed products, and case studies.
Includes: Experiential Learning Activity
Prerequisite(s): IDES IDES 2302 and Third or Fourth Year standing or permission of the School of Industrial Design.
Lectures and tutorials three hours a week.

IDES 3202 [0.5 credit]
Advanced Studies in Form and Colour
Students may continue the research and study encountered in IDES 2205, IDES 2300 and IDES 2302 by doing advanced research in the phenomena of form and/or colour and their communicative functions in products. Directed Study.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2302 or permission of the School of Industrial Design.
Lecture and tutorials three hours a week.

IDES 3302 [0.5 credit]
Projects IIIB
Introduction to the principles of innovation as found in industrial design. Invention, innovation, entrepreneurship, basic mechanisms. The design project(s) explore some or all of the design principles covered in the lectures.
Includes: Experiential Learning Activity
Precludes additional credit for IDES 3301 (no longer offered).
Prerequisite(s): IDES 3300 or IDES 3310 or permission of the School of Industrial Design.
Studio and lectures six hours a week.

IDES 3305 [0.5 credit]
Special Studies
Special Industrial Design Studies deal with specific projects, which may differ from year to year depending on the availability of specialists in a particular field or study opportunities as they present themselves.
Prerequisite(s): IDES 2302 and Third or Fourth Year standing or permission of the School of Industrial Design.
Lectures, tutorials, laboratory and studio three hours a week or equivalent.

IDES 3306 [0.5 credit]
Special Studies
Special Industrial Design Studies deal with specific projects, which may differ from year to year depending on the availability of specialists in a particular field or study opportunities as they present themselves.
Prerequisite(s): IDES 2302 and Third or Fourth Year standing or permission of the School of Industrial Design.
Lectures, tutorials, laboratory and studio three hours a week or equivalent.

IDES 3310 [0.5 credit]
Projects IIIA
Introduction to the design principles associated with the evaluation and re-design of an existing product. Topics include: user/machine relationship, component packaging, and manufacturability. The design project(s) explore some or all of the design principles covered in the lectures.
Includes: Experiential Learning Activity
Precludes additional credit for IDES 3300 (no longer offered).
Prerequisite(s): IDES 2302 or permission of the School of Industrial Design.
Studio and lectures six hours a week.

IDES 3502 [0.5 credit]
Contextual Nature of Products
Cultural subjects which have an influence on contemporary industrial design. The perspective of the course is anthropological: the context and cultural relevance of industrial design.
Prerequisite(s): IDES 1000 (ARCH 2006) and Third or Fourth year standing.
Lectures and tutorials three hours a week.

IDES 3601 [0.5 credit]
Research for Design
Basic design research techniques to foster design exploration. Methods focus on understanding context and user experience to produce meaningful, actionable insights and design opportunities. Processes include qualitative and quantitative research, as well as creative and evaluative research with people. Teamwork and collaboration are explored.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2600 and Third or Fourth Year Standing.
Lectures or laboratory three hours a week.

IDES 3999 [0.0 credit]
Co-operative Work Term
Includes: Experiential Learning Activity

IDES 4001 [0.5 credit]
Industrial Design Seminar
Topics vary yearly and address key contemporary industrial design issues. There is a focus on writing, discussion, and debate. Students organize a seminar with design professionals and other community experts including student and professional presentations, interaction, and discussion.
Prerequisite(s): IDES 3302 or permission of the School of Industrial Design.
Seminar three hours a week.

IDES 4002 [0.5 credit]
Professional Practice
The organizational aspects of consultancies and client responsibilities within the framework of corporate management. Topics include: the form of contracts for consultancy, determination of fees, legal implications, patents and copyrights. Guest lecturers.
Precludes additional credit for IDES 3503 (no longer offered).
Prerequisite(s): IDES 3300 or IDES 3310 or permission of the School of Industrial Design.
Lectures and discussion three hours a week.

IDES 4101 [0.5 credit]
Adv. Studies in Manufacturing
Advanced manufacturing concepts and workflows are examined through a series of workshops and minor projects utilizing state-of-the-art equipment.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2101 and IDES 2102.
Lectures or laboratory three hours a week.

IDES 4200 [0.5 credit]
Form Organization
Using form organization as a tool to design, the definition and prescription of monolithic solids by means of an abstract system; making and verifying materialized approximations of such solids.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 2300 and IDES 2302 or permission of the School of Industrial Design.
Lectures, tutorials and laboratory six hours a week.

IDES 4301 [0.5 credit]
Minor Projects
Advanced skills-based course that enhances student experience in novel, experimental processes and techniques in design. Workshop-style activities and short projects focus on increasing skill competence and versatility in a variety of fields. Emphasis on time management and the ability to work independently.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 3302 or permission of the School of Industrial Design.
Studio and lectures six hours a week.

IDES 4305 [0.5 credit]
Special Studies
Like the third-year Special Industrial Design Studies, those of fourth year deal with specific projects, which may differ each year depending on the availability of specialists among the faculty of the School of Industrial Design or on particular opportunities as they present themselves.
Prerequisite(s): IDES 3302 or permission of the School of Industrial Design.
Lectures, tutorials, laboratory and studio three hours a week or equivalent.

IDES 4306 [0.5 credit]
Special Studies
Like the third-year Special Industrial Design Studies, those of fourth year deal with specific projects, which may differ each year depending on the availability of specialists among the faculty of the School of Industrial Design or on particular opportunities as they present themselves.
Prerequisite(s): IDES 3302 or permission of the School of Industrial Design.
Lectures, tutorials, laboratory and studio three hours a week or equivalent.

IDES 4310 [1.5 credit]
Capstone Project
Application of design principles in a comprehensive design project. Problem area should be product-oriented and of sufficient complexity. Normally undertaken in consultation with off-campus organizations and/or industry. Supervised by faculty and/or sessional members.
Includes: Experiential Learning Activity
Precludes additional credit for IDES 4300 (no longer offered).
Prerequisite(s): IDES 3302 or permission of the School of Industrial Design.
Studio and lectures six hours a week in Fall and twelve hours a week in Winter.

IDES 4400 [0.5 credit]
Internship Field Report
Work experience related to industrial design. Following the internship period, normally 12 weeks, a comprehensive report describing observations and insights will be submitted. Graded Sat or Uns.
Includes: Experiential Learning Activity
Prerequisite(s): IDES 3300 or IDES 3310 or permission of the School of Industrial Design.
Tutorial hours arranged.