

Design Innovation (DES INV)

DES INV 10 Discovering Design 2 Units

Terms offered: Fall 2017, Fall 2016

This course, ideal for students who are looking for an introduction to the broad world of design, covers design careers, design fields, histories of design and ethics in design. Students will gain language for analyzing and characterizing designs. In this course you will be learning design both from theoretical and historical perspectives, and from studio-based design exercises and projects. The weekly assignments and final projects will emphasize foundational design skills in observation, ideation, problem finding and problem solving, formgiving, communication, and critique.

Discovering Design: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Repeat requires instructor and advisor consent

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Summer:

6 weeks - 6 hours of lecture per week

8 weeks - 4 hours of lecture per week

10 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Discovering Design: [Read Less \[-\]](#)

DES INV 15 Design Methodology 3 Units

Terms offered: Fall 2017, Spring 2017, Fall 2016

This introductory course aims to expose you to the mindset, skillset and toolset associated with design. It does so through guided applications to framing and solving problems in design, business and engineering. Specifically, you will learn approaches to noticing and observing, framing and reframing, imagining and designing, and experimenting and testing as well as for critique and reflection. You will also have a chance to apply those approaches in various sectors.

Design Methodology: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Students who have taken E15 cannot take DES INV 15 for credit. Others require instructor consent.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer:

6 weeks - 8 hours of lecture per week

8 weeks - 6 hours of lecture per week

10 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Design Methodology: [Read Less \[-\]](#)

DES INV 21 Visual Communication & Sketching 3 Units

Terms offered: Spring 2018, Fall 2017, Spring 2017

Anyone can sketch. Great communicators today should never hesitate to reach for a pen and draw.

Sketching is an effective expression of thinking and problemsolving. It is a form of visual communication that can be learned and is a skill that can improve with practice and a little guidance. This course will give participants practice and confidence in their ability to communicate through sketching.

Visual Communication & Sketching: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Repeat requires instructor and advisor consent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer:

6 weeks - 8 hours of lecture per week

8 weeks - 6 hours of lecture per week

10 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Visual Communication & Sketching: [Read Less \[-\]](#)

DES INV 22 Prototyping & Fabrication 3 Units

Terms offered: Fall 2017, Summer 2017 First 6 Week Session, Spring 2017

This course teaches concepts, skills and methods required to design, prototype, and fabricate physical objects. Each week relevant techniques in 2D and 3D modeling and fabrication are presented, along with basic electronics. Topics include a range of prototyping and fabrication techniques including laser-cutting, 3D modeling and 3D printing, soldering, and basic circuits.

Prototyping & Fabrication: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Repeat requires instructor and advisor consent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer:

6 weeks - 8 hours of lecture per week

8 weeks - 6 hours of lecture per week

10 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Prototyping & Fabrication: [Read Less \[-\]](#)

DES INV 23 Creative Programming and Electronics 3 Units

Terms offered: Spring 2018

This course teaches techniques to conceptualize, design and prototype interactive objects. Students will learn core interaction design principles and learn how to program devices with and without screens, basic circuit design and construction for sensing and actuation, and debugging. Students work individually on fundamental concepts and skills, then form teams to work on an open-ended design project that requires a synthesis of the different techniques covered.

Creative Programming and Electronics: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: This course has no pre-requisites. This course pairs well with DES INV 22: Prototyping & Fabrication, but the two courses can be taken in either sequence, or individually

Repeat rules: Repeat requires instructor and advisor consent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer:

6 weeks - 8 hours of lecture per week

8 weeks - 6 hours of lecture per week

10 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Creative Programming and Electronics: [Read Less \[-\]](#)

DES INV 24 User Experience Design 3 Units

Terms offered: Spring 2018

This studio course introduces students to design thinking and the basic practices of interaction design. Following a human-centered design process that includes research, concept generation, prototyping, and refinement, students work as individuals and in small teams to design mobile information systems and other interactive experiences. Becoming familiar with design methodologies such as sketching, storyboarding, wire framing, and prototyping, students learn core skills for understanding the rich contexts of stakeholders and their interactions with technology, for researching competing products and services, for modeling the current and preferred state of the world, and for prototyping and communicating solutions. No coding is required.

User Experience Design: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Repeat requires instructor and advisor consent

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer:

6 weeks - 8 hours of lecture per week

8 weeks - 6 hours of lecture per week

10 weeks - 5 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

User Experience Design: [Read Less \[-\]](#)

DES INV 90 Special Topics in Design Innovation 1 - 4 Units

Terms offered: Spring 2016, Fall 2015

Selected topics in design innovation. This course cannot be used to complete any course or unit requirement for College of Engineering undergraduates.

Special Topics in Design Innovation: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:

7 weeks - 1-8 hours of lecture per week

8 weeks - 1-8 hours of lecture per week

15 weeks - 1-4 hours of lecture per week

Summer:

6 weeks - 2-10 hours of lecture per week

8 weeks - 2-10 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Special Topics in Design Innovation: [Read Less \[-\]](#)

DES INV 90E Technical Special Topics in Design Innovation 1 - 4 Units

Terms offered: Prior to 2007

Selected topics in design innovation. This course counts towards the technical elective requirement for College of Engineering undergraduates.

Technical Special Topics in Design Innovation: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:

7 weeks - 1-8 hours of lecture per week

8 weeks - 1-8 hours of lecture per week

15 weeks - 1-4 hours of lecture per week

Summer:

6 weeks - 2-10 hours of lecture per week

8 weeks - 2-10 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Technical Special Topics in Design Innovation: [Read Less \[-\]](#)

DES INV 95 Design Innovation Lecture Series

1 - 2 Units

Terms offered: Spring 2018

This lecture series exposes students to a diverse range of leaders, innovators, and concepts in design innovation. Students will learn from speakers, who will share their insights, practices, and projects from working at the intersections of design and technology innovation.

Design Innovation Lecture Series: [Read More \[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of colloquium per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Design Innovation Lecture Series: [Read Less \[-\]](#)

DES INV 97 Field Study 1 - 4 Units

Terms offered: Spring 2018

Students take part in organized, off-site field programs with companies that work in design innovation, overseen by an instructor. Examples of a field program include field trip series, internship programs, etcetera.

Field Study: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Consent of sponsoring instructor required

Hours & Format

Fall and/or spring: 15 weeks - 1-10 hours of fieldwork per week

Summer:

6 weeks - 1-29 hours of fieldwork per week

8 weeks - 1-20 hours of fieldwork per week

10 weeks - 1-15 hours of fieldwork per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Field Study: [Read Less \[-\]](#)

DES INV 98 Directed Group Study for Undergraduates 1 - 4 Units

Terms offered: Fall 2017, Spring 2017

Directed group study on various topics in design innovation.

Directed Group Study for Undergraduates: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only.

Alternative to final exam.

Directed Group Study for Undergraduates: [Read Less \[-\]](#)

DES INV 99 Supervised Independent Study 1 - 4 Units

Terms offered: Not yet offered

Supervised independent study. Enrollment restrictions apply.

Supervised Independent Study: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Consent of sponsoring instructor required

Hours & Format

Fall and/or spring: 15 weeks - 1-10 hours of independent study per week

Summer:

6 weeks - 1-29 hours of independent study per week

8 weeks - 1-20 hours of independent study per week

10 weeks - 1-15 hours of independent study per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Supervised Independent Study: [Read Less \[-\]](#)

DES INV 190 Special Topics in Design Innovation 1 - 4 Units

Terms offered: Spring 2018, Fall 2017, Summer 2017 Second 6 Week Session

Selected topics in design innovation. This course cannot be used to complete any course or unit requirement for College of Engineering undergraduates.

Special Topics in Design Innovation: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:

7 weeks - 1-8 hours of lecture per week

8 weeks - 1-8 hours of lecture per week

15 weeks - 1-4 hours of lecture per week

Summer:

6 weeks - 2-10 hours of lecture per week

8 weeks - 2-10 hours of lecture per week

10 weeks - 2-6 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Special Topics in Design Innovation: [Read Less \[-\]](#)

DES INV 190E Special Topics in Design Innovation 1 - 4 Units

Terms offered: Summer 2017 10 Week Session

Selected topics in design innovation. This course includes sufficient treatment of engineering principles that it may be used to fulfill College of Engineering undergraduate unit requirements.

Special Topics in Design Innovation: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:

7 weeks - 1-8 hours of lecture and 0-4 hours of laboratory per week

8 weeks - 1-8 hours of lecture and 0-4 hours of laboratory per week

15 weeks - 1-4 hours of lecture and 0-4 hours of laboratory per week

Summer:

6 weeks - 2-10 hours of lecture and 0-6 hours of laboratory per week

8 weeks - 2-10 hours of lecture and 0-8 hours of laboratory per week

10 weeks - 2-6 hours of lecture and 0-6 hours of laboratory per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

Special Topics in Design Innovation: [Read Less \[-\]](#)

DES INV 195 Design Innovation Lecture Series 1 - 2 Units

Terms offered: Not yet offered

This lecture series exposes students to a diverse range of leaders, innovators, and concepts in design innovation. Students will learn from speakers, who will share their insights, practices, and projects from working at the intersections of design and technology innovation.

Design Innovation Lecture Series: [Read More \[+\]](#)

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of colloquium per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Design Innovation Lecture Series: [Read Less \[-\]](#)

DES INV 197 Field Study 1 - 4 Units

Terms offered: Not yet offered

Students take part in organized, off-site field programs with companies that work in design innovation, overseen by an instructor. Examples of a field program include field trip series, internship programs, etcetera.

Field Study: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Consent of sponsoring instructor required

Hours & Format

Fall and/or spring: 15 weeks - 1-10 hours of fieldwork per week

Summer:

6 weeks - 1-29 hours of fieldwork per week

8 weeks - 1-20 hours of fieldwork per week

10 weeks - 1-15 hours of fieldwork per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Field Study: [Read Less \[-\]](#)

DES INV 198 Directed Group Study for Undergraduates 1 - 4 Units

Terms offered: Fall 2017, Spring 2017, Fall 2016

Directed group study on various topics in design innovation.

Directed Group Study for Undergraduates: [Read More \[+\]](#)

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Alternative to final exam.

Directed Group Study for Undergraduates: [Read Less \[-\]](#)

DES INV 199 Supervised Independent Study 1

- 4 Units

Terms offered: Fall 2017

Supervised independent study. Enrollment restrictions apply.

Supervised Independent Study: Read More [+]

Rules & Requirements

Prerequisites: Consent of sponsoring instructor required

Hours & Format

Fall and/or spring: 15 weeks - 1-10 hours of independent study per week

Summer:

6 weeks - 1-29 hours of independent study per week

8 weeks - 1-20 hours of independent study per week

10 weeks - 1-15 hours of independent study per week

Additional Details

Subject/Course Level: Design Innovation/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

Supervised Independent Study: Read Less [-]

DES INV 290 Advanced Special Topics in Design Innovation 1 - 4 Units

Terms offered: Prior to 2007

Selected advanced topics in design innovation.

Advanced Special Topics in Design Innovation: Read More [+]

Rules & Requirements

Prerequisites: Varies by topic. Check syllabus and/or Jacobs Institute website for specific prerequisites

Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:

7 weeks - 1-8 hours of lecture per week

8 weeks - 1-8 hours of lecture per week

15 weeks - 1-4 hours of lecture per week

Summer:

6 weeks - 2-10 hours of lecture per week

8 weeks - 2-10 hours of lecture per week

Additional Details

Subject/Course Level: Design Innovation/Graduate

Grading: Letter grade.

Advanced Special Topics in Design Innovation: Read Less [-]