INTERDISCIPLINARY DESIGN PROGRAM

A Customized Senior Design Experience for Students + Sponsors
IDESIGN is a customized capstone design experience at the University of Central Florida for engineering and computer science graduating seniors. IDESIGN is uniquely integrated into existing Senior Design courses offered in the UCF College of Engineering and Computer Science. IDESIGN students receive the same excellent Senior Design experience offered by each departmental program in the college.

Students are brought together from multiple disciplines to work collaboratively on carefully-scoped projects that serve UCF’s educational mission, are important to our sponsors, and that provide the guidance needed for success.

As an IDESIGN sponsor, you get a team of student engineers and computer scientists who work collaboratively to solve a design problem important to you. Our faculty work with you to scope projects that optimize student success. Your team will be tailored to suit your specific design challenge.

**Why Sponsor an IDESIGN Team?**

As an IDESIGN sponsor, you get a unique opportunity to solve a challenging problem important to your organization. You also gain a valuable recruitment opportunity to become acquainted with the students, from multiple disciplines, who are working collaboratively on a solution to your challenge.

Your sponsorship supports engineering and computer science education — a critical societal need. IDESIGN teams are formed by carefully aligning student interests and backgrounds with project requirements. The faculty advisors assigned to each team guide students through the complexities of the design process. Sponsor liaisons partner with the faculty advisors in the educational process.

**Senior Design at UCF**

Each year, more than 1,500 senior-level undergraduate students studying engineering or computer science work on design project teams as a culminating academic experience prior to graduation. The full Senior Design experience offered at UCF helps students transition from college to the workforce. IDESIGN draws from this abundant talent pool to create a customized experience for students and sponsors.

“We've been sponsoring IDESIGN projects since 2019. It's been a great experience for the students and for Steelcase.”

— Edward Vander Bilt
Innovation Leader, Steelcase Inc.
Unleash Student Potential

Sponsoring an IDEIGN team helps senior-level engineering and computer science students navigate the transition from college academics to the workplace. Your sponsorship helps our students access these resources:

- Dedicated faculty advisors with industry backgrounds who directly supervise student teams and liaison between UCF and IDEIGN sponsors
- Program administration and development centered on interdisciplinary collaboration and participation in IDEIGN college-wide
- Senior Design course coordinators who deliver instructional content, work with sponsors to scope projects, regulate project timing and assess student progress
- Project materials and supplies
- Technical services, such as fabrication, 3D printing, software subscriptions, more

Significant Cost Savings for Industry Partners

**Sponsor:** Steelcase  
**Majors:** Industrial Engineering, Mechanical Engineering

Teams of IDEIGN students, over several academic semesters, redesigned one of Steelcase’s top-selling products, the Ology Sit-To-Stand Desk, to reduce production costs, improve operational productivity and ultimately save the company more than $750,000 annually.

Ideal IDEIGN Projects

Projects that are well-scoped in collaboration with faculty work best. This means:

- Problems that are important to the sponsor
- Open-ended technological design challenges that motivate and excite students
- Projects that are calibrated to student capabilities

Since we engage students from across the College of Engineering and Computer Science and, in some cases, other UCF colleges, we can and will form teams to address problems in a wide range of areas. Majors within the College of Engineering and Computer Science:

- Aerospace Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Photonics Science Engineering

Students in non-CECS majors can join an IDEIGN team as we routinely collaborate with university-wide colleges and faculty.

Resources for Students: The UCF Advantage

Beyond the direct resources for students available from IDEIGN sponsorship, UCF and the College of Engineering and Computer Science provide students with leadership-building experiences and modern facilities:

**Senior Design Boot Camp**
An intensive team-building workshop offered by the Engineering Leadership and Innovation Institute (ELI²) focused on collaboration, innovation, creativity and accountability.

**Maker Space Lab Complex**
An industrious flow of spaces to enhance the design process: the L3Harris Partnership Atrium, the Texas Instruments Innovation Lab, and the Manufacturing Center. The lab complex is designed to enhance creativity and collaboration as students transform their ideas into working prototypes. Labs are supervised and equipped with modern manufacturing and machining tools.

**Senior Design Showcase**
Offered virtually and in-person each fall and spring, the UCF Senior Design Showcase is a massive public display of finished engineering and computer science projects that prove students’ core skills and demonstrate job readiness. Projects are judged by 100+ industry professionals who are UCF engineering and computer science alumni. Projects are judged for technical merit, student professionalism, and communication and presentation skills. Best-in-Discipline, Best Interdisciplinary and Best-in-Show awards are given to the top student teams.
Frameless Glass Packaging Design

Sponsor: Steelcase
Majors: Industrial Engineering, Mechanical Engineering

A team of IDESIGN students designed and built a cost-neutral solution for packaging and shipping Steelcase’s bulk glass. Their solution protects the glass from cracks and chips that can occur during transit. The dynamic packaging design means the heavy glass panels can be rolled or tilted safely. Biodegradable and reusable materials were recommended to minimize environmental impact.

IDESIGN Sponsor Benefits

Because IDESIGN is a customized design experience for students and sponsors, the benefits of sponsorship can vary from one project to another. Potential benefits include:

- Receive a solution to a challenging design problem of importance and value to your organization
- Safely evaluate high-risk ideas in a low-risk environment
- Own the intellectual property (IP) generated from the IDESIGN project
- Get to know the best and brightest students for potential recruitment
- Open new doors and build lasting relationships with UCF: America’s Partnership University
- Support the educational mission of the University of Central Florida

A Source of Clean Energy and Pride

Sponsor: Orlando Utilities Commission
Collaborators: Orlando City Soccer and UCF School of Visual Arts and Design
Majors: Art, Computer Engineering, Electrical Engineering, Mechanical Engineering

Four teams of interdisciplinary students designed solar-powered art sculptures in OUC’s 2018 competition. A full-scale version of the winning sculpture, designed by 11 students, stands at Exploria Stadium in Orlando.
Delivering Joy to Families

**Sponsor:** UCF College of Health Professions and Sciences

**Collaborators:** National Institutes of Health

**Majors:** Electrical Engineering, Industrial Engineering, Mechanical Engineering

IDESIGN students drive innovation by enhancing the technology used in Go Baby Go! adaptive ride-on toy cars. The program has brought smiles and mobility freedom to children, and has captured local and national news attention. *Longwood Boy with Rare Disorder gets new ride for 4th birthday thanks to UCF program (NBC WESH2).*

New Tech Helps Researchers

**Sponsor:** UCF Marine Turtle Research Group

**Collaborators:** Northrop Grumman Foundation

**Majors:** Aerospace Engineering, Computer Science, Industrial Engineering, Mechanical Engineering

Teams of IDESIGN students have developed and delivered an improved database program to help UCF Marine Turtle Research Group scientists track turtles and interpret the data. The work supports a larger goal to reduce human interaction with turtles by using drones to collect data.

Students Drive Local Economic Growth

**Sponsor:** Guard Dog Valves

**Majors:** Electrical Engineering, Mechanical Engineering

Orlando-based startup Guard Dog Valves, founded by a UCF engineering alumnus, has enlisted several IDESIGN teams over the years to develop product solutions, perform applied engineering analysis, and test prototypes. The company’s products are designed to reduce water usage with innovative plumbing solutions.

**Sponsor:** Total Refrigeration Gaskets

**Majors:** Industrial Engineering, Mechanical Engineering

Each year, IDESIGN teams are assembled for TRG, a woman-owned and operated business based in Apopka, Florida. UCF students have designed, built and implemented advanced automation solutions that have significantly improved productivity in making industrial gaskets and seals.
Bi-Weekly Sponsor Meetings

Team formation (3-4 weeks)

Project kickoff

Concept Development (7-10 weeks)

Mid-Term Design Review

Final Concept Design Review

Before the semester begins

Project Initiation Pre-Work (3 to 6 months)
A. Interdisciplinary design program briefing
B. Sponsorship agreement
C. Identify and scope the design problem
D. Assign faculty advisor and identify sponsor liaison(s)

SEMESTER 1

Teams are assembled based on students’ interests and backgrounds.

Project kickoff

Requirements Definition (3-4 weeks)

Senior Design Boot Camp (3-4 weeks)

Concept Development

CONCEPT DEVELOPMENT begins based on the sponsor’s design challenge. Faculty advisor and sponsor liaison work with students to identify and match skills and interests to the sponsor’s project.

Weekly Faculty Advisor Meetings

Bi-Weekly Sponsor Meetings

Silent Electric Aluminum Fishing Boat
Sponsor: Correct Craft’s Watershed Innovation
Majors: Computer Science; Electrical Engineering; Mechanical Engineering

Fourteen IDESIGN students designed an ultra-quiet aluminum boat to help recreational fishers catch more fish. The design included a 20-HP electric motor that maximized efficiency. The team integrated advanced technologies into the boat.
DESIGN IMPLEMENTATION
Students build prototypes and complete integration and testing. The project ends with Senior Design Showcase where students present their projects to the public and alumni judges.

SEMESTER 2

- Project Plan (1-2 weeks)
- Critical Design Review (5 weeks)
- Design Implementation: prototype, integration and test (14-15 weeks)
- Weekly Faculty Advisor Meetings
- Bi-Weekly Sponsor Meetings
- Mid-Term Design Review
- Final Design Review and Demonstration

REAL-WORLD EXPERIENCE
WORKING TOGETHER

#3
The I in IDESIGN is

**Integrated**  Student teams are matched to project requirements

**Interdisciplinary**  Teammates from multiple majors solve complex problems

**Instructive**  Graduating seniors learn real-world design processes

**Intelligent**  Brilliant students deliver brilliant solutions

**Innovative**  Creative ideas that push boundaries

**Industrious**  Hard-working teams bring their best ideas to fruition

**Inspirational**  Successful students inspire others to achieve

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**Connect With Us**

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