Why a Capstone Design Course?
Increasingly, industry is emphasizing the need for graduates to have both technical and soft skills. Soft skills include the ability to work in teams, participate in project planning, give presentations, and be able to deal with uncertainties in a professional manner. Capstone design courses address both technical and soft skills.

The Capstone Senior Design Course (CIS 4910) in the Department of Computer Science and Engineering offers a focused team-based design experience incorporating appropriate engineering standards and multiple realistic constraints. Projects are proposed by industry and/or other partners and are completed within a defined development process.

Working with Industry
The Capstone Senior Design Course is based on industry-participation. Tampa Bay area and Central Florida companies are invited to contribute projects. The benefits to a company from participating in the course include:

• An early look at the graduating class for recruiting purposes.
• An opportunity to have a non-critical path “back burner” problem solved.
• Access to new ideas and cutting-edge technology.

Course Objectives
The goal of the Capstone Senior Design Course is to teach students the entire product development process through a hands-on experience. As part of the course, students complete a significant hardware or software project. Student teams of three to four members will:

• Select an industry-provided hardware or software project
• Follow a formal development process
• Complete requirements and specification documentation and prepare a test plan
• Implement their design
• Test the resulting system
• Produce a written final report, poster, and press release describing their project
• Give a final oral presentation

Partnering with Industry
A Capstone Senior Design Course

For more information regarding the Capstone Senior Design Course please contact:

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Department of Computer Science and Engineering at the University of South Florida

USF
UNIVERSITY OF SOUTH FLORIDA
COLLEGE OF ENGINEERING
**WHAT OUR PARTICIPANTS SAY:**

**PROFESSOR**

“We view this course as a very important component in the preparation of a well-educated computer engineer.”

- Ken Christensen, Capstone Professor

**COMPANY**

“Raytheon has been working with the senior design project for the past several years and it has permitted us the ability to prototype conceptual ideas for future products with minimal investment. Additionally, we treat each project as a form of community outreach to educate the students on the proper methods of end-to-end system development with formal design reviews throughout the semester, all of which are attended by Raytheon senior engineers. Once a student has successfully completed one of our demanding projects, we know they have the necessary skills to work anywhere within our company.”

- Jay Schroder, Senior Principal Systems Engineer

**ALUMNUS**

“Choosing a difficult and well defined senior project, with a large company like Raytheon, gave me exposure to real-world hardware and software development cycles. From requirements analysis to final demonstration, every facet of my senior project gave me valuable experience to reference on resumes and during job interviews.”

- Michael Stillo, Senior Software Engineer

Raytheon Company (August 2010 BS/MS Computer Engineering)

**COMPANY**

“We were quite impressed with the USF senior project students’ thoroughness and considerations for following the initial requirements as well as their flexibility with implementing new requirements and features as the project progressed. The application workflow showed signs of having listened to how we do business here which is represented by the various application features that are working better than what was requested. I believe the team went above and beyond in the implementation of product features. My review of the code indicated a high level of technique, coding accuracy, consideration for security, error handling, and performance. Such detail would be a welcome addition to any application as a standard methodology. It has been a pleasure and fun working with the USF senior team.”

- Dennis Lorence

Application Software Development Manager

Xcira

**COMPANY**

“Sealund & Associates has been quite pleased to work with such talented USF students as those in Dr. Christensen’s classes. The students bring knowledge, energy, enthusiasm, and a willingness to learn from our staff. Our system engineers are enjoying the opportunity to teach the students our methodologies and deliverables as they relate to custom projects. Several of the student projects have been used by Sealund for leading-edge technologies. Thank you, USF and Dr. Christensen, for allowing Sealund the privilege of working with you and your students.”

- Barbara Sealund, President, Sealund & Associates

**WHAT OUR PARTICIPANTS SAY:**

**COMPANY**

In the past 10 years many companies have participated in the Capstone Senior Design Course. These companies include:

- CAE
- Catalina Marketing
- Citigroup
- Harris
- Honeywell
- Lab Data Systems
- Nixen
- Numara
- Raytheon
- Sealund & Associates
- Sypris Electronics
- Xcira

**PAST PROJECTS**

In the past 10 years many companies have participated in the Capstone Senior Design Course. These companies include:

- Flight simulator tutorial on a smart phone
- Flash-based games for e-learning
- Hardware device to enable USB file transfer to a smart phone
- Hardware and software for autonomous link optimization for WiMax antennas
- Hemochron Analyzer Interface to AegisPOC
- Code Orange dashboard for online auction simulcast system
- Linux Auditor Interface for asset management
- And many other hardware and software projects

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