Capstone 2012 DESIGN Conference

MAY 30 - JUNE 1, 2012 ▸ CHAMPAIGN-URBANA, IL

2012 CAPSTONE WORKSHOP LINE-UP

WEDNESDAY, May 30th 6:00-7:30 pm (with box dinner)

1. Capstone 101 – Best Practices for Capstone Course Administration
2. Safety and Reliability in Capstone Design
3. Build Your Own Embedded System: A Flexible, Open Reconfigurable Approach for Capstone Courses

WEDNESDAY, May 30th 8:00-9:30 pm

1. Capstone 101 – Best Practices for Capstone Course Administration
2. Safety and Reliability in Capstone Design
3. It's All about Relationships: Understanding Their Development inside a Capstone Clinic

THURSDAY, May 31st (with box dinner)

6:00-7:30 pm

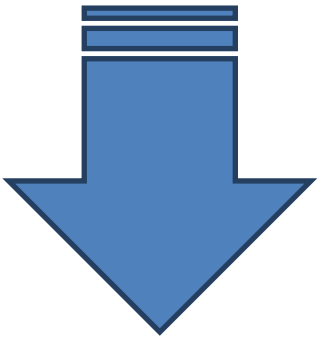
1. A Professional Practice Model for Capstone Design Courses
2. Assessing Awareness of Professional Responsibility in Engineering Projects
3. What Do You Need from Technology for Capstone Design?

THURSDAY, May 31st

8:00-9:30 pm

1. Capstone Design Hub: Building an Online Resource Center for the Capstone Community
2. Assessing Awareness of Professional Responsibility in Engineering Projects

SCROLL DOWN TO SEE WORKSHOP DESCRIPTIONS



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WEDNESDAY WORKSHOP DESCRIPTIONS

CAPSTONE 101 - BEST PRACTICES FOR CAPSTONE COURSE ADMINISTRATION

Peter Schmidt, University of North Carolina—Charlotte
Jim Conrad, University of North Carolina—Charlotte
Junichi Kanai, Rensselaer Polytechnic Institute
Peter Rogers, Ohio State University
Keith Stanfill, University of Florida
Greg Watkins, California State University—Chico

The goal of this workshop is to identify best practices in interfacing with industry in the solicitation, definition, implementation and delivery of sponsored projects. Participants will view a short presentation given by the facilitators on interfacing with industry, then break into small groups with the facilitators. They will then have a chance to confer with one another about practical ways to embed these practices in capstone course syllabi that they bring along or in provided example syllabi. Facilitators represent decades of experience in industry and in running industry-sponsored capstone projects.

SAFETY AND RELIABILITY IN CAPSTONE DESIGN

Jennifer Marrs, Long View Consulting LLC

This workshop examines ABET and industry expectations for safety and reliability training in design education. Participants will gain hands-on experience as well as access to two tools that address these topics--Safety Risk Assessment and Failure Modes, Effects & Criticality Analysis. The facilitator has worked as a mechanical design engineer for over 20 years and is author of the book Machine Designers Reference.

BUILD YOUR OWN EMBEDDED SYSTEM: A Flexible, Open Reconfigurable Approach for Capstone Courses

Andrew Watchorn and Margaret Barrett, National Instruments

In this workshop, participants will receive a hands-on introduction to industry standard platforms that can be used with graphical programming to build a complete embedded system from scratch. Use of these tools by students in capstone courses will help them quickly design, prototype, and implement real projects and provide experience with some of the same tools they will use in industry.

WEDNESDAY WORKSHOP DESCRIPTIONS (CONT)

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IT'S ALL ABOUT RELATIONSHIPS:
Understanding Their Development Inside a Capstone Clinic
Chuck Pezeshki, Washington State University

This workshop examines the mimetic Spiral Dynamics model of human relationships along with its implications for capstone project selection/scoping, client training/debriefing, student-client interactions, student management of 'group knowledge', and external facilitation needed for optimal design achievement as well as professional growth. Over the course of the workshop, participants will have an opportunity to explore, discuss, and assess a variety of project management tools grounded in the principles of Spiral Dynamics. Dr. Pezeshki serves as director of the Industrial Design clinic in the School of Mechanical and Materials Engineering where he has supervised over 190 different student projects made possible by a committed team of clients and nearly $2M in industry funding.

MORE

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THURSDAY WORKSHOP DESCRIPTIONS

A PROFESSIONAL PRACTICE MODEL FOR CAPSTONE DESIGN COURSES

Robert Joel Barnett, Vanderbilt University

This workshop describes the operation of a Professional-Practice Model for Senior Capstone Design Courses which eliminates many of the shortcomings associated with the traditional academic course structure when applied to a realistic design experience. The workshop will describe the sequence of events necessary to implement the model, from initial corporate contact to final project presentation. Examples will be given of documentation, policies and practices, terminology, and other practical aspects of the model. Discussion will be solicited concerning alternate methods. The facilitator has extensive industrial and academic experience and has taught/supervised 150Senior Capstone design courses over the past15 years.

ASSESSING AWARENESS OF PROFESSIONAL RESPONSIBILITY IN ENGINEERING PROJECTS

Steven Beyerlein, University of Idaho
Denny Davis, Washington State University
Howard Davis, Washington State University
Patricia Brackin, Rose-Hulman Institute of Technology
Phillip Thompson, Seattle University

This workshop presents a web-based professional responsibility instrument and accompanying rubric, which are used to assess student understanding and skill at identifying and discussing areas of strength and opportunity in an ethical case taken from an ongoing capstone project. The session will alternate between short presentations, exploration of website materials, opportunity to score and discuss samples of student work, and learning how class-wide ABET reports can be derived from this data. The facilitators are part of a national research consortium that has developed assessment instruments and supporting curricula as part of the Integrated Design Engineering Assessment and Learning System (IDEALS).

THURSDAY WORKSHOP DESCRIPTIONS (CONT)

WHAT DO YOU NEED FROM TECHNOLOGY FOR CAPSTONE DESIGN?
Todd Akins, MathWorks

This workshop will (1) present the latest features of MATLAB and Simulink to support capstone design including microcontroller targeting/testing, robot and mechanism design, and FPGA/ASIC design, and (2) provide examples of how universities are using these features. Attendees will learn how these features can be used in capstone design and will have the opportunity to provide feedback regarding new features that would benefit capstone design courses.

CAPSTONE DESIGN HUB: Building an Online Resource Center for the Capstone Community
Steve Blair, University of Utah
Susannah Howe, Smith College
Peter Rogers, Ohio State University
Junichi Kanai, Rensselaer Polytechnic Institute
Keith Stanfill, University of Florida
Glen Livesay, Rose-Hulman Institute of Technology

The goal of this workshop is to preview the beta version of the new Capstone Design Hub (CDHub) and get feedback from the capstone community to improve the value and usability of the CDHub. The facilitators will discuss the origin of the CDHub idea and review the current content/layout of the site. Participants will have the opportunity to test out the site and will be encouraged to provide input on current content and guidance for future directions. Facilitators comprise the CDHub design team.