

“DESIGN EDUCATION: INNOVATION AND ENTREPRENEURSHIP”

MUDD DESIGN WORKSHOP VIII

26–28 MAY 2011

PRELIMINARY PROGRAM

Supported by Harvey Mudd College and the National Science Foundation, this **workshop** brings together engineering educators, designers and researchers to articulate the relevant issues of innovation and entrepreneurship in engineering design education. The **participants** intend to identify and delineate the key intellectual and institutional issues that engineering design educators must address.

ORGANIZING COMMITTEE: Clive L. Dym, *Harvey Mudd College* (Chair); Alice Merner Agogino, *University of California at Berkeley*; Aaron Altman, *University of Dayton*; Cindy J. Atman, *University of Washington*; J. Edward Colgate, *Northwestern University*; Daniel D. Frey, *Massachusetts Institute of Technology*; Peter Gregson, *Dalhousie University*; Ahmad Ibrahim, *Yorkville University*; Christopher L. Magee, *Massachusetts Institute of Technology*; Gregory B. Olson, *Northwestern University*; John W. Prados, *University of Tennessee, Knoxville*; Sheri D. Sheppard, *Stanford University*; Janis P. Terpenney, *Virginia Polytechnic Institute and State University*; and John W. Wesner, *Carnegie Mellon University*.

12:00PM, THURSDAY: OPENING LUNCHEON

PLATT CAMPUS CENTER

Welcome: Robert Cave, Vice President for Academic Affairs, *Harvey Mudd College*

Remarks: Clive L. Dym, *Harvey Mudd College*

Keynote: “Finding One’s Way,” Alice Merner Agogino, *University of California at Berkeley*
Larry J. Leifer, *Stanford University*

2:00PM, THURSDAY (S1): CHARACTERIZING INNOVATION

PARSONS DESIGN STUDIO

Moderator: Phil E. Doepker, *University of Dayton*

D. M. Ferguson and M. W. Ohland, *Purdue University*, “What is innovativeness in engineers?”
A. F. McKenna and A. Carberry, *Arizona State University*, “Characterizing the role of modeling in innovation.”

R. Currano, M. Steinert, and L. J. Leifer, *Stanford University*, “A framework for reflection in innovation design.”

R. Burton and L. Vanasupa, *California Polytechnic State University, San Luis Obispo*, “On the use of pattern interruption and self observation in human systems innovation.”

4:00PM, THURSDAY (S2): STUDENTS SEEING INNOVATION**PARSONS DESIGN STUDIO**

Moderator: Ahmad Ibrahim, *Yorkville University*

- K. E. Bigelow, *University of Dayton*, "Student perspectives in an all-female first-year engineering innovation course."
- K. Lau, S. Beckman and A. M. Agogino, *University of California at Berkeley*, "Diversity in design teams: An investigation of learning styles and its impact on team performance and innovation."
- J. Rhee, D. Parent, L. Speer, A. Basu and L. Gerston, *San Jose State University*, "Formative assessment of the influence of personality in a multidisciplinary senior project combining innovation and entrepreneurship."
- M. V. Manuel, *University of Florida*, A. F. McKenna, *Arizona State University*, and G. B. Olson, *Northwestern University*, "The driving force behind student innovation in capstone design projects: Insights into the human connection."

6:30PM, THURSDAY: INFORMAL DINNER & PRESENTATION**PLATT CAMPUS CENTER**

Speakers: "A conversation about change in teaching engineering: Insights from the Academic Pathways Study,"
Cindy J. Atman, *University of Washington*
Sheri D. Sheppard, *Stanford University*

8:00AM, FRIDAY (S3): IMPROVING INNOVATION LEARNING (I)**PARSONS DESIGN STUDIO**

Moderator: Gregory B. Olson, *Northwestern University*

- E. Gerber, J. Olson and R. Komarek, *Northwestern University*, "Innovation-based learning: A pilot study, evaluation, and emerging design principles."
- M. K. Thompson, *Korea Advanced Institute of Science and Technology*, "Fostering innovation in cornerstone design courses."
- D. S. Strong, *Queen's University*, "An approach for improving design and innovation skills in engineering education: The multidisciplinary design stream."
- J. R. Goldberg, *Marquette University*, "Learning to identify unmet needs and new product opportunities."

10:00AM, FRIDAY (S4): IMPROVING INNOVATION LEARNING (II)**PARSONS DESIGN STUDIO**

Moderator: Alice Merner Agogino, *University of California at Berkeley*

- S. Brunhaver, M. Lande, S. D. Sheppard and E. Carryer, *Stanford University*, "Fostering an enterprising learning ecology for engineers."
- S. L. Beckman, ; *University of California, Berkeley*, and M. Barry, *Stanford University*, "Design as a learning process: Implications for teaching."
- A. Johri and H. J. Teo, *Virginia Polytechnic Institute and State University*, "Levering advances in open innovation to re-design design learning."
- D. Schaefer and J. L. Thames, *Georgia Institute of Technology*, J. H. Panchal, *Washington State University*, S. Haroon, *The RBR Group*, F. Mistree, *University of Oklahoma*, "Innovative design education in a global distance learning setting: Challenges–Opportunities–Experiences."

12:00PM, FRIDAY (GREEN ROOM, PLATT CENTER)**SECOND DAY LUNCHEON**

Host: Ziyad H. Duron, Chair, Department of Engineering, *Harvey Mudd College*

2:00PM, FRIDAY (S5): VIEWS FROM ON TOP**PARSONS DESIGN STUDIO**Moderator: Daniel D. Frey, *Massachusetts Institute of Technology*

- J. Chen, *Zhejiang University*, C. L. Magee, *Massachusetts Institute of Technology*, and K. L. Pey, *Singapore University of Technology and Design*, "What design adds to a modern research university."
- U. Jorgensen and A. Valderrama, *Technical University of Denmark*, "Response strategies to new challenges to engineering and design education."
- M. Marasco, *Northwestern University*, "Entrepreneurship and innovation broaden design education."
- J. McCormack and S. Beyerlein, *University of Idaho*, D. Davis, H. Davis, M. Trevisan and J. Lebeau, *Washington State University*, S. Howe, *Smith College*, J. Khan, *Tuskegee University*, P. Brackin, *Rose-Hulman Institute of Technology*, P. Thompson, *Seattle University*, P. Leiffer, *LeTourneau University*, and R. Gerlick, *Pittsburg State University*, "Contextualizing engineering ethics in capstone projects using the IDEALS professional responsibility assessment."

4:00PM, FRIDAY (S6): ENTREPRENEURSHIP**PARSONS DESIGN STUDIO**Moderator: Peter Gregson, *Dalhousie University*

- N. Duval-Couetil, T. Reed-Rhoades and S. Haghigi, *Purdue University*, "Engineering students and entrepreneurship education: Involvement, attitudes and outcomes."
- K. Yasuhara, *University of Washington*, M. Lande and H. L. Chen, *Stanford University*, C. J. Atman, *University of Washington*, and S. D. Sheppard, *Stanford University*, "Educating engineering entrepreneurs: A multi-institution analysis."
- R. Adams, *Purdue University*, "Learning through entrepreneurially-oriented case-based introduction."
- Z. M. Oden, M. K. O'Malley, G. Woods, T. Kraft and B. Burke, *Rice University*, "Outcomes of recent efforts at Rice University to incorporate entrepreneurship concepts into interdisciplinary capstone design."

6:30PM, FRIDAY: MDW VIII BANQUET**PLATT CAMPUS CENTER**Host: Christopher L. Magee, *Massachusetts Institute of Technology*Speaker: "Creating a world class technology and design based university"
Thomas L. Magnanti, *Singapore University of Technology and Design*
*Massachusetts Institute of Technology***8:00AM, SATURDAY (S7): CURRICULUM MATTERS****PARSONS DESIGN STUDIO**Moderator: Janis P. Terpenney, *Virginia Polytechnic Institute and State University*

- S. R. Daly, J. Christian, S. Yilmaz, C. Seifert and R. Gonzalez, *University of Michigan*, "Assessing design heuristics in idea generation within an introductory engineering design course."
- A. Silva and L. Faria, *Technical University of Lisbon*, "two approaches to design teaching in a mechanical engineering curriculum."
- M. Eggermont and C. McDonald; *University of Calgary*, "Drawing the pump so the pump can draw water: The importance of engineering sketching."
- W. M. Butler, J. P. Terpenney, R. M. Goff, and H. M. Steinhauer, *Virginia Polytechnic Institute and State University*, R. S. Pant, *IIT Bombay*, "Improving the aerospace capstone design experience through simulation based learning."

10:00AM, SATURDAY (S8): MDW VIII POSTER SESSION**PLATT CAMPUS CENTER**

Moderator: John W. Wesner, *Carnegie Mellon University*

- M. Schar and M. Lande, *Stanford University*, "What Counts' for success: Understanding the role of product manager and its implications for teaching design engineering students."
- A. Goncher and A. Johri, *Virginia Polytechnic Institute and State University*, "Do authentic constraints inspire innovative solutions? Findings from a case study of a freshmen engineering design project."
- L. Oehlberg, I. Leighton, B. Hartmann and A. M. Agogino, *University of California at Berkeley*, "Multidisciplinary human-centered design: Fostering innovation across engineering, humanities and social sciences."
- M. E. Jung, N. S. Sonalkar, J. Edelman and L. J. Leifer, *Stanford University*, Enskilling engineers."
- K. Ramani, L. Kisselburgh, R. Cipra, R. Adams and S. Visser, *Purdue University*, "Building and enhancing innovation through design: A multi-disciplinary project."
- C. Roschuni and A. M. Agogino, *University of California at Berkeley*, "Teaching design research for innovation and entrepreneurship."
- B. Hyman, R. Fales, Y. Lin and R. A. Winholtz, *University of Missouri*, and J. Borgford-Parnell, *University of Washington*, "Capstone design as cornerstone for project-based learning throughout the curriculum."
- L. A. Shluzas and L. J. Leifer, *Stanford University*, "Preparing tomorrow's medical device designers as entrepreneurs."
- J. Koster and A. Velazco, *University of Colorado*, C-D. Munz, *University of Stuttgart*, and K. C. Wong and D. Verstraete, *University of Sydney*, "Hyperion: A follow-the-sun experience."
- B. Morkos, S. Joshi and J. D. Summers, *Clemson University*, and V. Mucino, *West Virginia University*, International capstone immersion experience: "A preliminary evaluation of senior design in Mexico."
- R. Ulseth, D. H. Jonassena, R. M. Marraa, D. Ewert, Jeff Wandler, Bart Johnson, and Andrew Lillesve, *University of Minnesota*, "Designing and implementing an authentic PBL model."
- C. Z. Qian and S. C. Visser, *Purdue University*, "Design for all: A multi-disciplinary design experience."
- S. Petersen, Ingomar & Ingomar, and M. Steinert and L. J. Leifer, *Stanford University*, "What designers can learn from artists and architects about the philosophy within conceptualization."

12:00PM, SATURDAY: CLOSING LUNCHEON**PLATT CAMPUS CENTER**

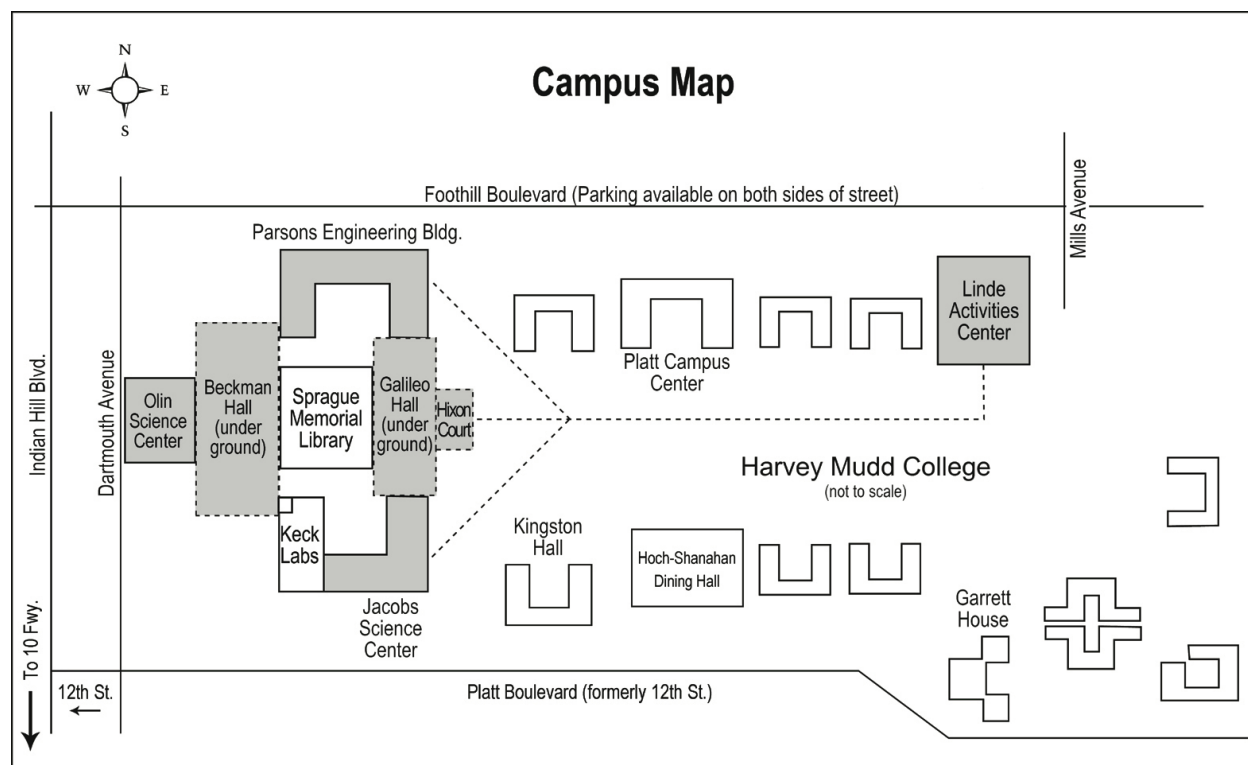
Hosts: Aaron Altman, *University of Dayton*; J. Edward Colgate, *Northwestern University*, and Clive L. Dym, *Harvey Mudd College*.

LOGISTICS (I)

MDW VIII will be held in the Engineering Design Studio in the Parsons Building at Harvey Mudd College. It begins with registration at 11:00AM on **Thursday, 26 May**, in the southwest lobby of the Parsons Building. Lunch follows at noon, and the workshop continues through the afternoon of Saturday, 30 May. The registration fee of **\$400.00** covers two continental breakfasts (Friday, Saturday), three lunches (Thursday, Friday, Saturday), two dinners (Thursday, Friday), and copies of the preliminary (CD) proceedings.

MDW VIII Fellowships may be available to defray expenses for participants from under-represented groups or minority-serving institutions. The cognizant NSF program officer has recommended funding, but a formal award has not yet been tendered. To apply for an **MDW VIII Fellowship**, please submit the relevant particulars together with your registration form (on the next page).

HMC CAMPUS MAP



Parking is available along Foothill Blvd. on both sides of the street, behind the Linde Activities Center, on the south east corner of Foothill Blvd. and Mills Ave., on Dartmouth Ave., and very limited areas on Platt Blvd. and 12th St.

LOGISTICS (II)

Arrangements for discounted rooms have been made at The DoubleTree Hotel in Claremont, about one-half mile away from the college (and a pleasant walk, at that). Reservations at The DoubleTree can be made online or by calling 800-222-8733. The discounted rate is **\$99.00** plus tax for a single, but please be sure to mention the group code: **HDE**. Reservations must be made by **24 APRIL** to obtain the discounted rate.

Harvey Mudd College is located in Claremont, California, about 35 miles east of Los Angeles. It is most easily (~ 15 mins.) reached from Ontario International Airport (ONT), but can also be reached from Los Angeles International (LAX), Orange County (SNA), and Burbank (BUR) Airports.

REGISTRATION DEADLINE

THURSDAY, 5 MAY 2011

To ensure a place at the workshop, please return the form below together with the registration fee (checks payable to Harvey Mudd College) by **THURSDAY, 5 MAY 2011**, to:

Ms. Sydney Torrey
Department of Engineering
HARVEY MUDD COLLEGE
301 Platt Boulevard
Claremont, CA 91711

Name: _____

Department: _____

Institution: _____

Address: _____

Phone: _____

Facsimile: _____

Credit Card Type/Number: _____

To inquire about logistics, registration or proceedings, contact Sydney Torrey at 909-621-8020 or at sydney_torrey@hmc.edu.

For programmatic or technical inquiries, contact Clive Dym at 909-621-8853 or at clive_dym@hmc.edu.

Expires (mm/yr) _____

REMINDER

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