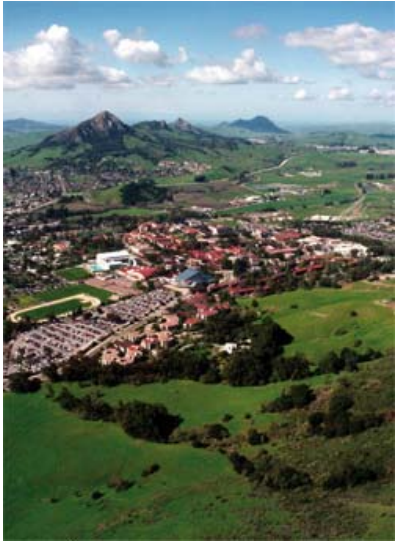


FPE @ Cal Poly: Status Report

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Where is Cal Poly?



Cal Poly overview



- Founded in 1901
- California State University system
 - One of 23 campuses
- 38,000+ applications for fall 2009
- Average freshman GPA is 3.71
- Ranked best public undergraduate university in the West by U.S. News and World Report 15 years in a row



Cal Poly overview



- Guiding educational philosophy
 - “Learn by Doing”
- Student body
 - approximately 19,400
- Total campus size: 9,678 acres
 - SLO and Santa Cruz counties
- Programs offered:
 - 66 bachelor’s
 - 27 master’s (soon to be 28!)
 - 1 doctorate



FPE program overview



- MS degree program in College of Engineering
 - Program administered by Continuing Education
 - Students need BS in engineering or related field
 - GPA of 3.0 for admission (same as other engineering)
 - 45 credit program
 - 10 courses at 4 credits each
 - Culminating project / comprehensive exam for 5 credits
- FPE program must be self-supporting
 - Blessing in disguise in this economy
 - No state support available for new programs

FPE program overview



- Starting as a “pilot program”
- Program delivered in blended format
 - Lectures in technology classrooms via internet
 - On-campus students in classrooms
 - Distance students at computers
 - Synchronous or asynchronous
- Student cohorts
 - On-campus students
 - Primarily full-time students continuing from BS degree
 - Distance students
 - Primarily part-time students who are working professionals

FPE curriculum



- Typical 45-credit MS degree program
 - 10 courses (4 credits each)
 - 4 Fundamentals courses
 - 4 Applications courses
 - 2 Elective courses
 - Culminating project / exam (5 credits)
 - Comprehensive fire and life safety analysis

FPE curriculum



- Fundamentals track
 - FPE 501 Fundamental Thermal Sciences
 - (or approved elective for qualified students)
 - FPE 502 Fire Dynamics
 - FPE 503 Flammability Assessment Methods
 - FPE 504 Fire Modeling

FPE curriculum



- Applications track
 - FPE 521 Egress Analysis and Design
 - FPE 522 Fire Detection, Alarm and Comm. Systems
 - FPE 523 Water-based Fire Suppression Systems
 - FPE 524 Structural Fire Protection

FPE curriculum



- Electives (in FPE)
 - FPE 551 Fire Safety Regulation and Management
 - FPE 552 Smoke Management and Special Hazards
 - FPE 553 Project Management (tentative)

FPE curriculum



- Culminating project
 - Students are required to:
 - 1) complete a comprehensive fire and life safety analysis of a selected building or other structure
 - 2) prepare a detailed report documenting their analysis, findings and conclusions
 - 3) defend their report in an oral presentation
 - Review panel of faculty and professional mentors
 - This serves as the required comprehensive exam

FPE curriculum



- Culminating project elements
 - Identification and analysis of relevant building and fire safety codes and standards that apply to the project;
 - Identification and analysis of the implicit performance objectives associated with the building and fire safety codes and standards relevant to the project;
 - Specification of the explicit goals, objectives and performance criteria relevant to the project;
 - Identification and justification of the fire scenarios to be used for the performance-based analysis of the project;

FPE curriculum



- **Culminating project elements**
 - Identification, justification and use of the fire analysis tools and techniques (e.g., computer-based fire models) selected to analyze fire hazard development and mitigation associated with selected fire scenarios;
 - Analysis of the impact of selected building fire safety systems, such as fire detection and suppression systems, on fire hazard development and mitigation;
 - Analysis of human behavior and egress system design and impact on evacuation times for the project;

FPE curriculum



- **Culminating project elements**
 - Development and justification of conclusions regarding the achievement of specified performance objectives and criteria;
 - Preparation of a comprehensive report of analyses, findings and conclusions;
 - Presentation and defense of projects to a review panel composed of professional mentors and faculty members.

FPE program faculty



- On campus
 - Chris Pascual / Mechanical Engineering
 - Thermal sciences
 - Dan Jansen / Civil Engineering
 - Structural engineering / concrete structures
 - Tracey Thatcher / Environmental Engineering
 - Smoke and aerosols
 - Chris Dicus / Forestry and Natural Resources
 - Wildland and WUI fires

FPE program faculty



- On campus
 - Lonny Simonian / Construction management
 - Alarm systems / HVAC / project management
 - Thomas Korman / Construction management
 - Sprinkler systems / Pumps / HVAC
 - Greg Wynn / Architecture
 - Egress design
 - Fred Mowrer / College of Engineering
 - Fire protection engineering

FPE program faculty



- Off campus (tentative)
 - Chris Lautenberger / REAX Engineering
 - Fire dynamics / Fire modeling ...
 - David Rich / REAX Engineering
 - Flammability assessment / Smoke management ...
 - Dan Gemeny / RJA
 - Project management / Performance-based design
 - Others ...

Where things stand



- Program approved by:
 - FPE advisory committee
 - College of Engineering Curriculum Committee
- Program approval pending:
 - Academic Senate Curriculum Committee (soon!)
 - Academic Senate
 - Provost
 - President
- On track for Fall 2010 launch!

Recent developments



- NSF proposal for Science Master's Program
 - \$700K over 3 years to support full-time students
 - \$15K stipend + \$10.5K educational expenses
 - Plan to support 2 cohorts of 10 students each
 - Students spend first 12 months on campus
 - Complete 8 STEM courses
 - Students spend next 9 months as interns
 - Complete 2 PLUS courses and culminating project
 - Letters of support from Chancellor, President, Deans and 4 FPE firms

Recent developments



- NRC proposal for curriculum development
 - Course on Fundamental Thermal Sciences
- Other NSF scholarship opportunities
 - Now on the CSU Chancellor's office radar

Program sustainability



- FPE community needs to commit long-term support to this and other FPE programs
- As pilot program, program will die in 3-5 years unless
 - We generate sufficient faculty interest
 - We need to sell this program to the faculty
 - We generate sufficient student interest
 - We need to actively recruit students to the profession
 - We establish continuing student support
 - Internships / mentoring / jobs / financial assistance

How you can help



- Recruit undergraduate students
 - CSU engineering programs
 - UC engineering programs
- Mentor students / hire interns and graduates
- Enroll in the program
 - Take that course you have been thinking about
- Provide financial support
 - Program is being operated on a very tight budget until it starts generating revenue

Acknowledgements



- Dean Skip Parks – Continuing Education
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- Dr. Bill Durgin – former Provost
- Prof. Chris Pascual – Mechanical Engineering

- SFPE (Dick Davis and Carl Baldassarra)
 - E&SF – pledge of \$30K for faculty development

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