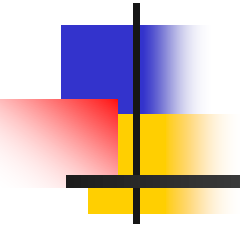


Education and Software Coordination Plan in Sustainable Manufacturing



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Major Activities

1. **Develop Sustainable Manufacturing Case Studies (four per year)**
2. **Integrate these Case Studies and other modules into the Electronic Library of the Center for Sustainable Engineering**
3. **Benchmark the status of current education in Sustainable Manufacturing in U.S. engineering programs**
4. **Conduct Workshops for faculty on Sustainable Manufacturing to enhance the sustainability content of manufacturing and design courses**



1. Develop Sustainable Manufacturing Case Studies

- What is a “Case Study”?
 - Interactive, graphically oriented
 - Contains supporting material and simulations
 - Can help instructor and students learn about some aspect of sustainable manufacturing design
- Request for Proposals has been distributed, due November 15, 2012



1. Develop Sustainable Manufacturing Case Studies (continued)

Those submitting proposals should:

- Clearly state the main idea of the study
- Give specifications of simulation underlying the case study: choice of simulation models, ranges of user-adjustable parameters, values of fixed parameters, etc.
- Prepare each component of the case study
- Provide documentation of trial runs using the simulation
- Provide a shorter version of the case study for outreach to K-12 and to industry



2. Develop Modules for the Electronic Library of the Center for Sustainable Engineering

- Intended to provide high quality education materials accessible on the web at no cost
- Case Studies are one type of module; also many other types of modules such as those emphasizing principles, reviews of broad areas, standards, etc.
- All modules are sent out for peer review
- Modules that pass review are posted
- Once posted, modules are indexed by topic, keywords, author, title, grade level, discipline of engineering, etc.



3. Benchmark Current Status of Education in Sustainable Manufacturing in the U.S.

- Degree programs
- Courses
- Topic areas covered within each course
- Case studies used in class
- Educational materials: textbooks, journal papers, conference papers, software, etc.
- Other educational activities: seminars, projects, field trips, laboratories



Proposed Survey Questions to Benchmark the Status of SM Education in the U.S.

- What degree programs (BS, MS, PhD) exist at your school that include required courses in SM?
- What minors or certificate programs exist in SM?
- In approximately what year did each of these programs begin?
- How many students have successfully completed each of these programs since the beginning?
- What courses include at least some material on SM?
What educational materials are used in each?
- What other educational activities in SM exist at your school?



4. Workshops on Sustainable Manufacturing for Faculty

- 1-3 day workshops to enhance sustainability in engineering design/manufacturing courses
- Sessions on principles of sustainable manufacturing, examples of case studies, educational materials, using and submitting SM modules to the Electronic Library
- Some workshops will be associated with national conferences (AIChE, ASEE), others will be free-standing
- Workshops will also encourage a network of SM educators and researchers



Summary: Four Education Activities

- 1. Sustainable Manufacturing Case Studies**
- 2. Modules for the Electronic Library of the Center for Sustainable Engineering**
- 3. Benchmark study of current education in Sustainable Manufacturing in U.S.**
- 4. Faculty Workshops on Sustainable Manufacturing to enhance the sustainability content of manufacturing and design courses**