An Evaluation Process for Engineering Courseware
The Premier Award for Excellence in Engineering Education Courseware

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Outline

- NEEDS—The National Engineering Education Delivery System
- *Premier Award for Excellence in Engineering Education*
NEEDS—The National Engineering Education Delivery System

• **An Established Dissemination Tool**
  – National program developed within the Engineering Coalitions program (1990-1998)
  – Courseware readily searchable and accessible
  – Expanding to include Science, Mathematics, Engineering and Technology Education (SMETE)

• **Established Quality Review Programs**
  – Criteria for evaluating courseware
  – *The Premier Award for Excellence in Engineering Education Courseware*
  – User comments
Goals (1998-2001)

- Provide a service to the engineering education community
- Grow and evolve NEEDS as the foundation for an on-line engineering education community
- Expand courseware review and evaluation efforts
- Serve as a bridge to the development of a SMET Digital National Library
The Premier Award for Excellence in Engineering Education Courseware

- A national competition to identify and reward the authors of high-quality, non-commercial courseware designed to enhance engineering education
  - The Premier Award is about the entire experience of using the courseware by learners, not just the courseware itself
- A dissemination system to distribute the Premier Courseware (via CD’s, ASEE Prism ads, presentations at FIE and ASEE)
Premier Award Criteria

• **Instructional Design**
  – Will students learn from the courseware?

• **Software Design**
  – Is it well designed and usable?

• **Engineering Content**
  – Is the content error free?
Engineering Content

- Accuracy of content
- Organization of content
- Consistency with learning objectives
Software Design

- Engagement
- Learner interface and navigation
- Technical Reliability
Instructional Design

- Interactivity
- Cognition/conceptual change
- Content
- Multimedia use
- Instructional use/adaptability
Judging and Review Process

• **Convene judging panel**
  – Content experts, instructional designers, students, publishers

• **Review supporting materials in the submission packet**
  – Author supplied responses to criteria
  – Evidence of student learning and evaluation
  – Testimonials

• **Evaluate the courseware**
Premier Courseware of 1997-1999

- Virtual Disk Drive Design Studio
- Drill Dissection and Bicycle Dissection
- Mars Navigator
- Della Steam Plant
- MDSolids
- Structural Engineering Visual Encyclopedia - UNH
- Engineering Graphics
- Cracking Dams

Over 6,700 CD-ROMs Distributed
For more info or to receive copies go to http://www.needs.org/engineering/premier/
Ongoing User Studies

- Adaptation and Adoption
  - Interviews with users
- Effective dissemination
  - On-line survey
- Views of quality courseware
  - Focus groups
- Impact on student learning
  - Student surveys/focus groups
Use of Premier Courseware

• **Surveys**
  Users want...
  • information on how to use the courseware (e.g., user’s guides, comments, instructor’s manuals, peer/expert reviews, etc.)
  • to be able to “try” or “test” the courseware

• **Premier Award Author Interviews**
  Faculty report...
  • a positive impact on career
  • an increase in interest and use of their materials
Use of Premier Courseware (cont.)

• Focus groups about digital libraries

    Adapters and Adopters want...

    • adaptable materials
    • expert reviews
    • info on how to use the materials

Community is the “glue” that allows for adaptation and adoption of courseware
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