

**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*

The logo for NEEDS (National Engineering Education Delivery System) features the word "needs" in a stylized, lowercase, italicized font with a shadow effect, set against a dark rectangular background.The Premier Award logo consists of a large, bold, serif capital letter "P" in a dark brown color. Below the "P", the words "Premier Award" are written in a smaller, italicized serif font.

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



NATIONAL ENGINEERING EDUCATION DELIVERY SYSTEM

Berkeley
Stanford

Northern
Arizona

UMBC
Virginia
Tech

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)**

The logo for 'needs' is written in a stylized, lowercase, italicized font with a black outline and a white fill, set against a dark, textured background.

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

needs

P
Premier Award

Software Design

- **Engagement**
- **Learner interface and navigation**
- **Technical Reliability**

needs

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Instructional Design

- **Interactivity**
- **Cognition/conceptual change**
- **Content**
- **Multimedia use**
- **Instructional use/adaptability**

needs

P
Premier Award

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**

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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

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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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For More Information

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