



Materials Interest Group ENGINEERING DESIGN COMPETITION

The Materials Interest Group of AATCC announces its inaugural engineering design competition and invites submissions from both graduate and undergraduate students. Participating teams may be mixed between the two groups, and for judging, NO distinction will be made between them.

In keeping with the Materials Interest Group mission, the aim of the competition is the promotion of innovative product development from an engineering design perspective.

The theme of this year's competition is "**Design of Engineered Fibrous Structures,**" and the contest has been divided into three areas:

Medical/Biomedical – Fibrous structures intended for use in medical environments external to the human body, e.g., surgical gowns, as well as soft/hard prosthetic devices that are utilized as body implants, e.g., artificial arteries.

Smart/Electronic – Fibrous structures that incorporate computing, sensing, monitoring, imaging and/or broadcasting electronics directly into the material to attain particular end uses, e.g., a background scenery imaging garment for camouflage blending.

Protective – Fibrous structures that protect the wearer from hazardous threats such as fire, chemical agents, ballistics, biological agents, etc., e.g., a projectile protective vest or garment.

COMPETITION GUIDELINES

1. Students are encouraged to work as individuals or in teams of up to 4. Each student or team may participate in only one competition area.
2. Each project submission should be given an identifying title to set it apart from all other entries.

3. Entrants should identify a purpose and market for their designed product and propose all stages from concept development to eventual commercial production. Documentation in the submitted proposal should include any combination of:
 - a. Engineering designs, CAD renderings, drawings and/or projections of the proposed product.
 - b. Manufacturing process simulations
4. The engineered product design will first be submitted on compact disc (CD) in the form of a proposal (MS WORD document in English) consisting of a title page, a maximum of 10 pages of text, supporting documentation (see (3) above) in appendices, a materials list for producing the product, a proposed manufacturing process schematic/flow diagram, and a reference bibliography. The proposal should detail the potential of the new product, design concept, supporting drawings/diagrams, assembly materials list, commercial process sequence for production and an economic cost analysis for production.
5. From the submissions, a panel of judges will select up to 10 finalists in each area to submit their proposals in the form of an electronic poster board supplied on CD as well as in physical poster board format. The CD requirements are:
 - a. Entire submission must be contained in 1 file as an “electronic poster board.”
 - b. File submission must be saved for the Windows Platform (.jpg, .bmp, .tiff .ppt or .pdf).
 - c. File size should not exceed 50 megabytes.
 - d. Resolution should be no less than 300 dpi.

Finalists may create their electronic poster board using any combination of off-the-shelf software (e.g., Adobe Photoshop/Illustrator or PowerPoint) or textile/apparel specific CAD software. The physical poster board format will be a single, rigid white board, 36” H x 48” W, that can be displayed on an artist’s easel. Judges will be given the CDs for study before viewing the physical poster boards as the final step in the selection process.

SELECTION CRITERIA

The panels of judges in the three areas will select the first and second place winners of the design competition based on:

- Concept Originality
- Use of Engineering Design Elements
- Technical Feasibility of the Concept using Best Available Technologies
- Quality and Clarity of Supporting Documentation
- Technical Rationale for the Assembly Materials List
- Efficacy of Proposed Commercial Process Sequence

- Viability of Economic Cost Analysis

SUBMISSION GUIDELINES

1. AATCC will accept up to 10 submissions from participating institutions.
2. Completed proposals on CD (English language, MS WORD format) must be received via Federal Express or UPS delivery no later than 4:00 PM, December 1, 2005 at:

AATCC Technical Center
Attn: Materials Interest Group Design Competition 2006
1 Davis Drive
Research Triangle Park, NC 27709-2215
Tel: 919-549-8141
Fax: 919-549-8933

The CD must be labeled with the name of the school, student name(s), entry area, and the title of the product submission.

3. Selected finalists in each area will be notified by February 8, 2006, and their electronic poster boards on CD and the accompanying physical poster boards must be received at the same address and manner as in (2) above by April 1, 2006. The name of the university, student name(s), and entry area should be placed in a corner of the back of the poster board. The title of the designed product should prominently appear on the front of the poster board.
4. All entries must be accompanied by a completed entry form. The entry fee is waived for all student members of AATCC. All participants who are not current student members of AATCC must pay \$25 to enter and thereby become members of AATCC (membership application forms must also be submitted with the \$25).
5. By entering the competition, students agree to allow AATCC to use any photographs and/or digital imagery in print, electronic publications, and press releases to the general textile press. Students retain the rights to their product designs. No materials supplied as part of this competition, including CDs and poster boards, will be returned. Copyright and patent protection is the responsibility of the student.

COMPETITION WINNERS

The winning entries in each area, whether submitted by an individual or a team, will be awarded:

First Place: \$1000
Second Place: \$500

Winners will be announced at the Materials Interest Group meeting, held in conjunction with the AATCC National Committee Meetings, May 2-4, 2006, in Research Triangle Park, NC. Winners will receive a complimentary student registration for the *2006 AATCC International Conference & Exhibition (IC&E)*, co-located with MEGATEX in Atlanta, Ga., in the fall of 2006. If winners worked as a team, all team members (up to 4) will be provided this complimentary registration as well.

FACULTY NOTE

AATCC announces this competition in the summer of 2005 in hopes that material science and engineering design faculty will incorporate this as a project in their fall curriculum. Faculty members are encouraged to assist students with the coordination of teams and resources and to act as a liaison with AATCC for this contest. The organization also encourages participation from within AATCC student chapters. If your school does not have a student chapter, please contact Birgit Patty at 919-549-3531 or pattyb@aatcc.org to learn more about this opportunity.

For more information, contact
AATCC Technical Center
1 Davis Drive
Research Triangle Park, NC 27709-2215
Tel. 919-549-8141
Fax. 919-549-8933