



# TMS HAMMERS OUT NEW BLADESMITHING COMPETITION

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Excitement is heating up for the TMS Bladesmithing Competition, set to debut at the TMS 2015 Annual Meeting & Exhibition (TMS2015) in Orlando, Florida, March 15–19. The challenge, simply stated, is to produce a knife or sword blade that has been formed by hand hammering or trip hammer forging. Students and artisans/enthusiasts compete in separate categories for cash prizes to show off their blacksmithing skills, as well as their understanding of the science underlying the process. (See sidebar for a summary of the rules.)

Stanley M. Howard, Professor, South Dakota School of Mines & Technology (SDSM&T), chairs the committee that is organizing the contest. Much of the insight that he is providing to the project is drawn from his own experiences with SDSM&T's wildly popular extracurricular blacksmithing activities, introduced in 2007. "Blacksmithing became so popular that the facility for it was opened every day, but we recently had to limit the hours to keep some students from spending too much time on it," said Howard.

While "heating and beating" metal as it forms something beautiful can be an almost magical experience for some, Howard said that the engineering lessons afforded by

blacksmithing are as powerful as formal laboratory classes.

"Blacksmithing brings to life such concepts as heat transfer, coke combustion, forging, welding, and quenching," said Howard. "Many of our students also perform metallographic analysis of their worked materials, making direct connections between microstructure and their thermo-mechanical processing. This has essentially surmounted a difficult-to-achieve instructional objective of getting students to recognize microstructures and relate them to properties."

Howard hopes that the TMS Bladesmithing Competition will encourage students in other universities to make those connections between theory and practice in the process of forging their own entries. He is also looking forward to seeing the entries submitted in the artisan category of the competition. "This not only gives artisans a venue for demonstrating their skills, but also provides an interface with materials characterization and processing engineers and advanced equipment manufacturers," he said. "Even for those who are not competing at TMS2015, this will be an interesting display of student and artisan expertise to produce historically and technically significant items using materials engineering knowledge."

## TMS BLADESMITHING COMPETITION

### RULES:

- Produce a knife or sword blade 20–120 cm long, including the handle. Each team is limited to one blade.
- Blades must be formed extensively by hand hammering or trip hammer forging.
- Blades can be smoothed/polished/sharpened by mechanical means.
- There are no restrictions on the starting materials for blades.
- In addition to the blade, all entries must include:
  - ✓ A video that presents the creative process. It should not exceed 15 minutes.
  - ✓ A characterization report that covers such aspects as metallography, hardness, flexibility, edge, and the ease of /need for re-sharpening. Student teams must provide original documentation showing the blade microstructure produced by the thermo-mechanical processes that were used.
- ✓ A poster on the blade forging process and characterization.

### PRIZES:

Prizes will be awarded in two entry categories: "University Students" and "Artisans and Enthusiasts"

- 1st place **\$1,000**
- 2nd place **\$500**
- 3rd place **\$250**
- Honorable mention(s) **\$100**

An additional \$500 may be awarded to the team that best produces a blade from ore or most closely demonstrates a historic blade's reproduction.

### DATES TO REMEMBER:

- Competition Registration Closes: December 15, 2014
- Video and Poster Submission: January 30, 2015
- Sword Submission: March 15 at TMS2015. Entries will be displayed in the Exhibit Hall.

To access the full set of rules and online registration form, visit [www.tms.org/bladesmithing](http://www.tms.org/bladesmithing).

