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LIFT And ASM Partner To Roll Out Materials Camp For STEM Educators

Training initiative provides advanced professional development workshops

Detroit, Michigan – Lightweight Innovations for Tomorrow (LIFT), ASM International, and the ASM Educational Foundation today announced the ASM-LIFT Materials Camp program, a one-week training program designed to enrich, stimulate and enhance the technical competence and teaching skills of middle and high school STEM teachers. The program includes exposing teachers to valuable lessons in physical science and chemistry, from an engineering perspective, to use for new STEM courses in their schools or to integrate into existing curricula.

“Employers in the 5-state LIFT region including Michigan, Ohio, Indiana, Kentucky and Tennessee will need to fill nearly 500,000 manufacturing-related job vacancies created by an aging workforce in the coming decade,” said Larry Brown, executive director, LIFT. “Many of these jobs will require more highly skilled workers who understand new technologies like those being developed in our manufacturing innovation institute.”

Curriculum content on the use of lightweight metals and new technologies will be integrated into the programs at 45 camps around the nation, including 12 camps throughout Michigan, Ohio and Indiana scheduled for the summer of 2015. The program teaches high school and middle school teachers to use every-day materials to provide hands-on and meaningful learning experiences that are proven to engage and inspire students in science, engineering, technology and mathematics.

“Teachers are our most valuable resource to build an educated and skilled manufacturing workforce,” said Emily Stover DeRocco, Workforce and Education Director, LIFT. “The cultivation of workers in the coming decade will be instrumental in the success of manufacturing in the region.”

Professor Glenn Daehn of The Ohio State University will serve as the Materials Camp technical advisor. Program education and industry partners include 38 host

educational institutions, 200 Master Teachers and faculty, ASM Educational Foundation, ASM International, and local ASM chapter industry volunteers.

“These camps will help provide a skilled workforce to meet current and future workforce demands,” said Daehn. “Our goal is to increase the supply of technically capable young people entering the general arena of engineering and applied science in STEM careers through continued outreach and promotion of lightweighting-related career opportunities.”

For more information on the ASM-LIFT Materials Camp and other LIFT education and workforce development initiatives, please visit www.lift.technology or contact LIFT Workforce & Education Director, Emily DeRocco, at ederocco@lift.technology or ASM Materials Education Foundation Director of Development, Nichol Campana, at Nichol.Campana@asminternational.org

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ABOUT LIFT

Lightweight Innovations for Tomorrow (LIFT) is part of the National Network for Manufacturing Innovation and serves as the nation's essential bridge between basic research and final product commercialization for lightweight metals. The Institute's world-class facilities and technology development capabilities provide the "right" solutions for the nation's defense and commercial transportation sectors to promote American competitiveness, energy efficiency, defense readiness, and economic growth.
www.lift.technology

ABOUT ASM

ASM International was founded in 1913 as the American Society for Metals. Today, ASM is the world's largest association of metals-centric materials scientists and engineers with over 30,000 members worldwide. ASM is dedicated to informing, educating and connecting the materials community to solve problems and stimulate innovation around the world.

ABOUT ASM Educational Foundation

The ASM Materials Education Foundation provides for the advancement of scientific and engineering knowledge through its support of education and outreach programs. Thanks to the hard work on the part of ASM volunteers and staff, the foundation is able to provide exciting opportunities for young people, encouraging them to pursue careers in materials, science, and engineering. To donate to the foundation, visit www.asmiinternational.org/donate.



BUILDING 21st CENTURY MANUFACTURING TALENT

ASM-LIFT Teacher Camps: Materials Science in Action

An Education & Workforce Development Initiative for LIFT...Lightweight Innovations for Tomorrow



THE PROBLEM

Nationwide, the talent pipeline for advanced materials and lightweighting is in critical condition. In 2013, only 100,000 students in the LIFT region completed certificates and degrees in areas related to lightweighting and materials technologies. The current level of student engagement is not enough. Not only have employers in the LIFT region posted 270,990 online job ads for lightweighting-related occupations in the past year, but employers will need to fill almost 500,000 vacancies created by the retirement of an aging workforce in the coming decade. The need for workers now is an important task and the pipeline of workers in the coming decade will be essential to manufacturing's success.

The opportunity to raise levels of awareness and understanding of these jobs and careers among students, parents, teachers and counselors is critical. As employer needs for this workforce increases - through business growth or through the need to replace an aging workforce - there must be a ready pipeline of individuals with the skills and interest to fill those jobs.

THE SOLUTION

Teachers are one of the most valuable resources for passing along critical career information to the future workforce. Because they possess the knowledge that students must learn, teachers are an essential piece of the talent pipeline puzzle. This is why ASM and LIFT are partnering to launch the Materials Camp program for teachers. The ASM-LIFT Materials Camp program is a nationwide outreach and STEM training initiative to prepare high school and middle school teachers to promote STEM education and career pathways awareness, ignite inquisitiveness, engage students and teachers, and educate them in new and interesting ways on physical science, chemistry, and other concepts integral to Materials Science courses.

The ASM Foundation has set goals around increasing the supply of technically capable young people entering the general arena of engineering and applied science in STEM careers. These camps will help develop a pipeline of workers equipped to meet current and future workforce demands.

PARTNERS

From Education

- 38 Host Educational Institutions
- 200 Master Teachers and Faculty

From Industry

- Industry Volunteers at each camp site
- ASM International & ASM Educational Foundation

EXPECTED OUTCOMES

Teachers from previously sponsored camps across the U.S. reported unanimously they "Were more confident in explaining complicated subjects," and "Gained new ideas and approaches to instruction" after attending this week-long training. With this training in-hand teachers can bring their knowledge back to the classroom to encourage more students to enter fields related to materials science and lightweighting. More students entering the field over time means that employers will have a robust pool of workers from which to hire, creating an advanced manufacturing talent powerhouse for the U.S.

ALIGNMENT TO LIFT WORKFORCE & EDUCATION GOALS



Ensure students gain STEM foundational skills



Attract more young people to manufacturing careers



Teach the teachers



Expand work-and-learn opportunities

MATERIALS SCIENCE IN ACTION

Summer 2015

The Materials Camp for teachers focuses on enriching, stimulating, and enhancing the technical competence and teaching skills of high school and middle school STEM teachers. The program teaches high school and middle school teachers of Math, Science, or Technology to use everyday materials, to provide hands-on experiences and meaningful learning experiences that are proven to engage and inspire students in science, engineering, technology and mathematics. A key lesson in the camp encourages teachers to begin to implement new instructional methods by introducing hands-on, low-cost experiments to enhance classroom instruction.

This one-week training exposes teachers to valuable lessons in physical science and chemistry, from an engineering perspective. The information and concepts presented can be utilized as a basis for teaching their own Materials Science course or infusing the concepts into an existing science course to increase relevancy and student motivation. LIFT-branded instructional material will be provided, including YouTube training modules that can be used by both Master Teachers and teachers who are part of the camps. These open-source documents will cover the following topics:



Value of Lightweighting
(focus on math and using units)



Essential Properties of Materials (focus on density, stiffness and strength)



Strengthening Mechanisms in Metals



Demonstrations in Strengthening



Demonstrations in Aluminum Strengthening

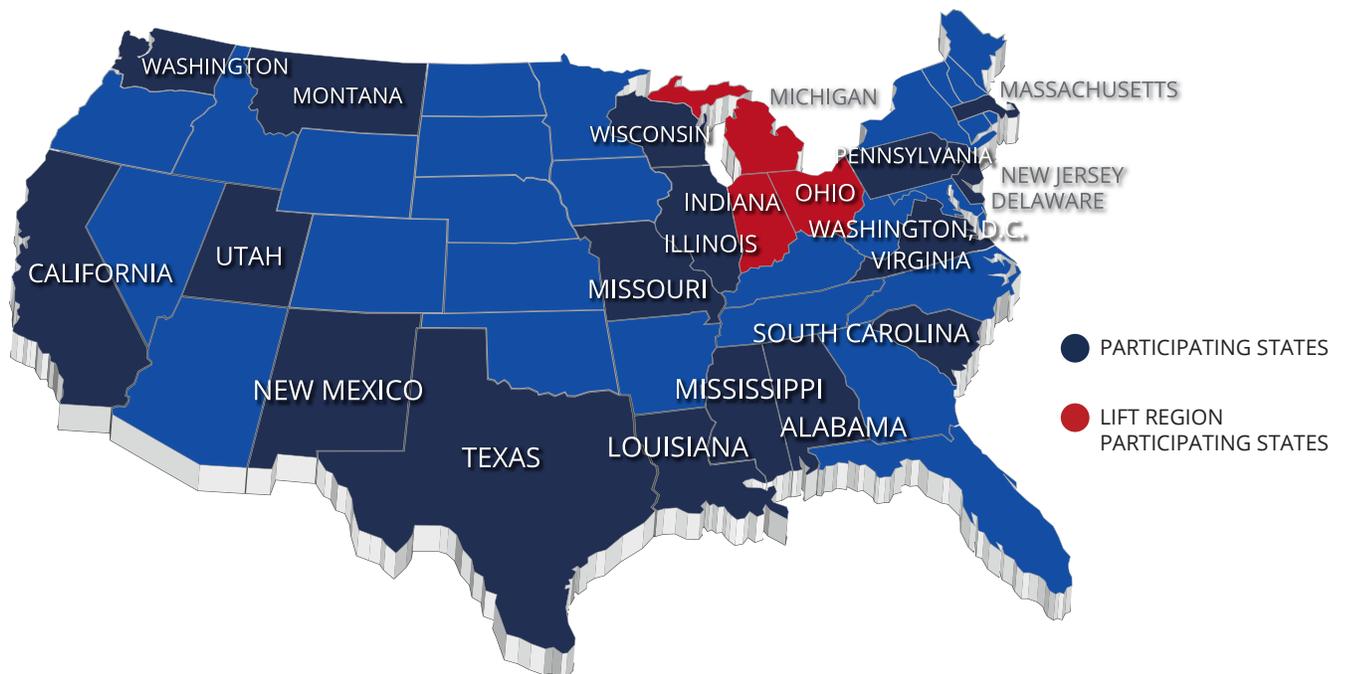
NATIONAL SCOPE

The ASM Materials Education Foundation will operate one week advanced instructional professional development workshops for middle and high school science teachers organized and orchestrated nationwide. Content on the use of lightweight metals will be integrated at all 45 camps in the summer of 2015 (see: <http://www.asminternational.org/foundation/teachers/teacher-material-camps/schedule>). The Materials Camp will involve 3 states in the LIFT region: Ohio, Indiana, and Michigan operating 12 camps during summer 2015 in the LIFT region.

The program will have national implications on multiple levels.

The model may be replicated by other states and educational institutions nationwide as the impact of “teaching the teachers” is realized. Furthermore, the 1,000 plus teachers touched by this curriculum will undoubtedly disseminate the information across state boundaries impacting students entering the STEM fields both locally and nationally.

STATE CAMP LOCATIONS



For more information please see lift.technology or contact LIFT Education & Workforce Director, Emily DeRocco at ederocco@lift.technology.