

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: Developing K-5 Teachers' Mathematics Knowledge for Teaching (Math Partnership)

Activation Amount: \$68,000.00

Agency: Tennessee Department of Education

Personnel:

PI - Holly Anthony, Curriculum and Instruction

Senior Personnel - David D. Smith, Mathematics

Senior Personnel - Jane Baker, Curriculum and Instruction

Senior Personnel - Leslie Suters, Curriculum and Instruction

Senior Personnel - Margaret Phelps, STEM Center

Abstract:

Tennessee Tech University (TTU) is the primary provider of professional development for teachers in the rural Upper Cumberland region. The TTU academic community understands the relationship between the quality of K-12 teaching and the academic skills needed by the students from this region. Given the size of local school districts and the geographic isolation from urban resources, the Upper Cumberland educational leaders at TTU and local school districts have created and sustained an active structure for providing quality professional development (PD) for area teachers for over 30 years. For this proposal, the TTU College of Arts and Sciences, Department of Mathematics, and the College of Education Department of Curriculum and Instruction have collaborated with the TTU Oakley Center for the Teaching and Learning of Science, Technology, Engineering, and Mathematics (STEM Center) and the TTU Rural Education Consortium in accessing the existing Upper Cumberland PD network of rural counties and identifying partners for this project. The scope of the project content includes attention to 1) all five standards in the Tennessee Mathematics Curriculum Standards, 2) research-based strategies for PD and mathematics instruction, and 3) development of standards-based instructional materials-since most adopted textbooks are not well aligned with the new K-5 Mathematics Curriculum Standards. This MSP project also builds on an emergent regional approach where PD targets a particular group of teachers across LEA's.

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From: 5/1/10 to 5/31/10

Project Title: Upper Cumberland Writing Project

Activation Amount: \$46,000.00

Agency: National Writing Project

Personnel:

Co-PI - Sandra H. Smith, Lab Exp

PI - Shannon Collins, Curriculum and Instruction

Support Personnel - Cecilia Ann Jenkins,

Abstract:

TTU will serve as a National Writing Project site, known as the Upper Cumberland Writing Project, to serve a five county area: Cumberland, Jackson, Overton, Pickett, and Putnam.

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From: 5/1/10 to 5/31/10

Project Title: Water Quality and Benthic Biological Assessment of Discharge of Water Treatment Residuals from the Florence and Platte South Potable Water Treatment Plants, Omaha, Nebraska

Activation Amount: \$116,266.00

Agency: EE&T, Inc.

Personnel:

PI - Dennis George, Water Center

Abstract:

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: Modeling of Moisture Diffusion in Composites

Activation Amount: \$8,000.00

Agency: United Launch Alliance

Personnel:

Co-PI - Jane Liu, Civil and Environmental Engineering

PI - John Peddieson, Mechanical Engineering

Abstract:

It is proposed to conduct an eight-month study of simulation techniques pertinent to moisture diffusion in composites. Existing formulations will be evaluated. Numerical solutions based on these formulations will be compared with available experimental data. An optimum formulation will be selected based on these comparisons. In addition, tests will be performed to characterize the mechanical properties of a foam used in aerospace composites.

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: System Simulation Methods/Processes Used to Accelerate Engine Control System Calibrator

Activation Amount: \$66,583.00

Agency: GM Powertrain

Personnel:

PI - Hwan-Sik Yoon, Mechanical Engineering

Abstract:

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: Fabrication of Coatings via a Pack-Aluminizing Process on Large Specimens

Activation Amount: \$15,000.00

Agency: Oak Ridge National Laboratory

Personnel:

PI - Ying Zhang, Mechanical Engineering

Support Personnel - Brian Bates, Manufacturing Center

Abstract:

In most of the power generation systems, the search for higher system efficiency has led to a progressive increase of operating temperatures. Some materials currently used are, however, reaching their limits in terms of mechanical or oxidation resistance, which affects components durability due to new types of failure. In the case of valve parts, high temperature corrosion assisted cracking has been identified as a new mode of failure that decrease component lifetime. One route to address that issue is to protect the alloy from aggressive industrial atmosphere by applying an oxidation-resistant coating. TTU has developed the capability to deposit coatings using a standard aluminizing process on large specimens. TTU's mission is thus to fabricate alumide coatings on 31V alloy, which is the alloy currently used by valve manufacturers. Four types of specimens will be coated: small rectangular oxidation coupons, one-inch long dog bone creep specimens, 3 1/4 long standard creep specimens, and eight 1/4 long fatigue specimens. Fatigue, creep, and oxidation testing will be conducted on these coated samples to assess the effect of coating on the substrate mechanical and oxidation behavior.

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: 2010 President's Academy for Emerging Technologies

Activation Amount: \$32,000.00

Agency: Upper Cumberland Human Resources Agency

Personnel:

Co-PI - Susan Elkins, Extended Education

PI - Kenneth Hunter, Basic Engineering

Senior Personnel - Cynthia Rice-York, Manufacturing Center

Senior Personnel - Lenly Weathers, Civil and Environmental Engineering

Senior Personnel - Sandra J. W. Smith, Curriculum and Instruction

Abstract:

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: Tennessee Early Childhood Training Alliance 2008-10

Activation Amount: \$17,600.00

Agency: Tennessee Department of Human Services/TSU

Personnel:

PI - Sue Bailey, Human Ecology

Support Personnel - Cheryl Tompkins, Human Ecology

Support Personnel - Darcey Neyman, Human Ecology

Support Personnel - Jennifer Swallows, TECTA Project

Support Personnel - Leslie Hamlett, Human Ecology

Abstract:

The Tennessee Early Childhood Training Alliance is a statewide, systematic training and professional recognition system to support and enhance the quality of early childhood education and school-age child care personnel in Tennessee. The TECTA statewide training system provide early childhood personnel with access to affordable training. The TECTA statewide training system is based on the belief that all early childhood and school-age child care personnel need to acquire recognized professional knowledge and skills to provide appropriate care and education for children and youth. The key to quality programs is the professional preparation of teaching and administrative personnel with whom children and youth spend a significant portion of their formative years. Early childhood and school-age child care professionals also provide information and training to parents and other family members to support them in their parenting responsibilities. The TECTA system is approved and supported by the Tennessee Board of Regents and the Tennessee Department of Human Services. TECTA training includes important knowledge and skills defined by a statewide steering committee. It is based on national standards for the preparation of professional early childhood education personnel. The TECTA statewide training system promotes recognition and provides articulation between certificate and degree programs when participants meet the Tennessee Board of Regents admission requirement standards. The TECTA systems include orientation, intermediate and advanced training, practicum experiences, clinical supervision, and advanced program specialization. The Tennessee Early Childhood Training Alliance represents the first statewide early childhood training and professional recognition system in the nation to include entry level through advanced degree programs administered by a higher education system.

Grants Awarded Report

From: 5/1/10 to 5/31/10

Project Title: Ivanhoe Fellowship

Activation Amount: \$2,500.00

Agency: The Ivanhoe Foundation

Personnel:

PI - Pedro Arce, Chemical Engineering

Abstract:

The Ivanhoe Fellowship award to an undergraduate student