PROJECT NUMBER:
02301

PROJECT TITLE:
Gearing Up for Transportation Engineering: Phase 3

PRINCIPAL INVESTIGATOR:
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PROJECT OBJECTIVE:
The objective of this research is to conduct a summer program for encouraging diversity in transportation-related educational programs in Alabama.

PROJECT ABSTRACT:
The numbers of female and minority students are increasing overall in engineering; however, there is still a relatively small percentage drawn to the field of transportation engineering. As a consequence, there is a need to educate young people about the profession to encourage underrepresented individuals to become engineers.

The major goal of this program is to introduce middle school students from underrepresented groups to basic engineering and transportation-related concepts. An additional goal of the project will be to draft local minority and female engineers to act as mentors. Students will use real world examples and new technologies in their hands-on activities. Instructional and interactive experiences will be developed with this grant to motivate interest in transportation engineering and related science topics. The activities will be designed so that the students can complete by themselves; not demonstrations performed by the instructors for the class. Experience has shown that the kids work best in teams so the activities and equipment will be appropriately structured. In general, each experiment will take approximately one hour including set-up and clean-up, follow-up discussions will be held to highlight concepts and results. Safety and good lab protocol will be considered and stressed throughout.

PROJECT TASK DESCRIPTIONS:
1. Recruiting – Send letters to schools, phone calls to science teachers and follow-up contacts; select two groups of 20 students based on potential and interest levels.
2. Schedule Mentors – Contact professional organizations (National Society of Black Engineers, Society of Women Engineers, American Society of Civil Engineers), interested college students, and local companies.
3. Set-up course schedule and lab experiences.
4. Run summer institute
5. Complete manual and web page as teacher resource
7. Write final report, and proposals to UTCA and NSF to continue in next year.

MILESTONES AND DATES:
Start Date – Jan 1, 2002
Task 1 – Mar 1, 2002
Task 2 – May 31, 2002
Task 3 – Jun 1, 2002
Task 4 – Jul 31, 2002
Task 5 – Sep 30, 2002
Task 6 – Nov 30, 2002
Task 7 – Dec 31, 2002
Project completion: Dec 31, 2002

TOTAL BUDGET:
One-year project: UTCA $49,789; matching 51,300, total budget $101,089.

STUDENT INVOLVEMENT:
The project will employ four undergraduate student assistants (either minority or from an underrepresented group) to help in designing the projects, documenting plans, laboratory set-ups, and to assist the participating middle-school students at the institute. Other university students will act as volunteers through the SWE, ASCE and NSBE student chapters.

RELATIONSHIP TO OTHER RESEARCH PROJECTS:
This project is a continuation and expansion of UTCA projects 00303 and 01313, “Gearing Up for Transportation Engineering Summer Institute,” phases 2 and 3.

TECHNOLOGY TRANSFER ACTIVITIES:
The team members will prepare documents of lab activities (both student activity guide and teacher instruction guide) in manual and electronic versions as a teacher resource. The research findings of this study will be incorporated into a final report and will be distributed to transportation professionals throughout the state.

POTENTIAL BENEFITS OF THE PROJECT:
This proposal addresses the mission and several of the major goals of UTCA. In addition to providing educational experiences for minority students within Alabama (thus addressing diversity issues), this program has the potential to affect the future workplace (human resources issues). The students will become involved in working on transportation-related safety research at an early age and thus may gravitate towards the profession as they mature.

TRB KEYWORDS:
Transportation, education, safety, outreach, diversity.