

Summary: Mayor's Youth Technology Corps – Creating Safe Communities through Information Technology Training in Homeland Security Applications

Intellectual Merit

Eastern Michigan University, in cooperation with the Detroit Public Schools, the City of Detroit Homeland Security and Emergency Management, and the Environmental System Research Institute Inc., proposes to develop the Mayor's Youth Technology Corps in Detroit. MYTC-Detroit, designed as a NSF-ITEST-Youth Based Program, offers resources, support, and opportunities for strengthening science, technology, engineering and mathematics (STEM) informal education. This is much needed in Detroit Metropolitan Area, because its 81.55% population (951,270) is African American and its mean household income is the fourth lowest in the nation. Considering the expanding roles of information technology in career opportunities and people's daily life, and the urgent need for protecting critical buildings for homeland security, MYTC-Detroit focuses on STEM informal learning through a case study of that the first responders, responding to incidents at critical infrastructure sites, need accurate information about the entire facility complex including exterior and interior details. Advancements in aerial ortho photography and oblique photography (geospatial information technology – GIS/T) have the potential to provide the responders with a clear view of the exterior facility environment. Navigable 3D modeling and facility database management built on cutting-edge information technology (IT) applications could provide real-time information about the building interior structures. GIS/T and IT together fully leverage the advances in geospatial tools and information technologies. Moreover, the multiple disciplines and technologies involved in the application of the 2D & 3D Critical Facility Management Toolset provide excellent opportunities for learning STEM and for training technologically literate workforce in law enforcement, city construction, urban planning and IT fields. For instance, MYTC-Detroit will introduce the students to computer aided drafting and designs, 2D and 3D geometry and computation, building construction and design, database creation and management, computerized simulation, information assurance, computer emergency response team operations, and computer forensics. The students will use their geospatial and information technologies skills to create, manage, analyze and merge all of the available data resources into a coherent emergency response system.

Broader Impact

MYTC-Detroit is a three-year program designed to provide two cohorts of 100 urban high school students, from Detroit Public Schools, with training and hands-on practice in a variety of IT management tools. This program will leverage online learning environments, online mentoring and support activities, and direct face to face training workshops to engage the students in learning STEM (IT and GIS/T in particular) in a urban community based problem-solving environment. Students living in economically disadvantaged urban areas generally have few experiences with the application of information technologies to real world problems. This is especially true when you apply powerful information technologies for emergency and crisis management. MYTC-Detroit is grounded in a theory into practice framework in which students gain a working knowledge of the concepts and then apply them to real world situations. With advanced skills in IT applications urban youth can have unlimited career opportunities. Included among these opportunities are careers that help build safe and secure schools and communities. The great educational pioneer Horace Mann said, "Upon the people, will rest the great and inspiring duty of prescribing to the next generation what *their fortunes shall be*, by determining in what manner they shall be educated. (Horace Mann, 1848, P.13) The MYTC program can serve as a model for "purposeful applications of technology based education" that will enable youth from any community to determine *their own fortunes*.