



## Society of Naval Architects and Marine Engineers 2009 Annual Meeting and Expo

**Title:** MarineTech Project-Attracting Students towards Math and Science Careers in Shipbuilding and Repair Industry

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**Abstract:** Low enrollment and high attrition rates in Science, Technology, Engineering and Math (STEM) based degree programs have created a shortage of workforce in industries like shipbuilding and repair which are important for national security. Part of this problem can be attributed to pedagogical issues like lack of engaging hands-on activities utilized for math and science instruction in middle and high schools. Another reason for this is that the teachers are not trained in taking an integrated approach to teaching math and science. This has led to large scale flight and attrition from STEM based career tracks. Consequently, engineering and engineering technology programs throughout the nation have observed declining graduation rates and quality of incoming students. To engage student's interest in STEM based careers, it is important that students establish a link between the math and science instruction and its application to solve real life problems early in their learning experience. Project based activities have a proven record as a pedagogical method. Effectiveness of this pedagogy has been supported by research in the acquisition and retention of knowledge. The MarineTech Project funded by the State Council of Higher education of Virginia and supported by the Shipbuilding and Repair industry has attempted to address the quality of STEM education in Virginia by developing project based learning kits and providing professional development training in the use of these kits. The project also provided teacher training in 21st century skills and Integrated Math and Science education while increasing awareness of teachers about shipbuilding and repair industry. The paper presents the motivation behind developing these project based learning (PBL) modules, issues related to implementation and results from student and teacher workshops.

**Keywords:** Project Based Learning; Workforce Development; STEM Education; Shipbuilding Industry