

**ADVANCED MANUFACTURING: ESTABLISHING FOUNDATIONS FOR EDUCATION AND CAREER PATHWAYS FROM MIDDLE SCHOOL THROUGH COLLEGE**

PROJECT GOAL	QUESTIONS TO BE ADDRESSED	MEASURES/DATA SOURCES	BEGIN/COMPLETION DATES	RESPONSIBLE
<p><b>Goal 1</b> Increase the number of students, particularly female and minority students, who study advanced manufacturing technology at the middle school, high school, community college, and university levels.</p> <p><b>Objectives:</b></p> <p>1.1 Improve the image of manufacturing and promote manufacturing as a viable, desirable career option. (Tasks 1.1A &amp; 1.1B)</p> <p>1.2 Integrate materials that market and promote manufacturing careers and education/career pathways into middle school and high school manufacturing curricula. (Task 1.2A)</p> <p>1.3 Provide opportunities for students to learn more about advanced manufacturing and its career opportunities through hands-on, experiential learning experiences in the summer. (Tasks 1.3A &amp; 1.3B)</p> <p>1.4 Establish mentoring and networking opportunities for females and minorities in manufacturing education programs. (Task 1.4A)</p> <p>1.5 Promote and market existing dual enrollment, advanced standing programs,</p>	<p>1. What number and proportion of students are studying advanced manufacturing technology subjects at the middle school, high school, community college, and university level?</p> <p>2. Of the number studying in these areas, what numbers and percentages are minorities and women?</p> <p><b>Year 2 Questions:</b> Data gathering on Questions 1 and 2 above to allow for evaluation of impact of activities-to-date and to allow for adjustment if necessary to better meet overall project targets, using a continuous improvement approach.</p> <p><b>Year 3 questions:</b> What changes have occurred in total enrollments in identified courses/programs over the period of the project implementation? What changes have occurred in female and minority enrollments in the targeted courses/programs over the period of the project implementation?</p>	<p><b>Baseline Data Collection</b> Identification of key courses and programs of study at each level for each project school.</p> <p>Analysis of school enrollment records in the identified courses and programs with demographic information concerning race and gender.</p> <p>Student perception surveys regarding manufacturing careers (to inform future efforts – a formative tool).</p>	<p>September 15, 2006 – October 15, 2006</p> <p>October 25, 2006 – November 20, 2006 – baseline data.</p> <p>October 15, 2006 – November 15, 2007 – 2006-07 data.</p> <p>October 15- November 15, 2008 – 2007-08 data.</p> <p>Student surveys of students in target groups in October 2006, 2007, and at project end in 2008. Paper Questionnaire.</p> <p>Surveys of parents of students in target groups in November 2006 and June 2008. Paper questionnaire.</p> <p>Surveys of staff (teachers, counselors, and principals) in</p>	<p>Designee of Project Manager in collaboration with evaluators.</p> <p>Project school liaisons supply enrollments from specified classes/programs for academic year 2005-06 to Learning Consultants. Demographics of gender and race are to be included.</p> <p>School liaisons will distribute and collect questionnaires and return to Learning Consultants for processing.</p> <p>Surveys will be mailed to parents with addressed, stamped envelopes that will be returned directly to Learning Consultants.</p> <p>School liaisons will distribute and collect, keeping track of those</p>

**Evaluation Plan for PA NSF Project in Advanced Manufacturing**

**Final 9/11/06**

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and articulation agreements among project partners. (Task 1.5A)	What evidence exists that the perceptions of target groups concerning manufacturing careers have changed as a result of this project?	Staff and parent perception surveys regarding manufacturing careers.  Interpretation and projections concerning changes in both state and project enrollments in target areas in contrast to manufacturing employment changes within the state	October 2006, October 2007, and June 2008. Paper questionnaire.  Public information available on Internet.	who return the instruments. Learning consultants will analyze.
<p><b>Goal 2</b> Update manufacturing education in Pennsylvania from middle school through community college and university programs.</p> <p><b>Objectives:</b> 2.1 Adopt and implement model manufacturing curricula from middle school through community college and university programs. (Task 2.1A) 2.2 Integrate information and experiences related to manufacturing career options, particularly for females and minorities, through model manufacturing curricula. (Tasks 2.2A &amp; 2.2B)</p>	In what ways has manufacturing education in target schools changed?	Documents Review: Review of curricula in use in targeted programs in years 1 and 3.	January 2007 – two days of on-site meetings with key teaching personnel and project leadership.  April 2008 – two days of on-site review with teachers and project leadership.	Learning Consultants.
<p><b>Goal 3</b> Update the knowledge and skills of Pennsylvania’s manufacturing educators, and provide critical resources to support the implementation of model curricula.</p> <p><b>Objectives:</b> 3.1 Provide professional development experiences for teachers to support the implementation of model manufacturing curricula. (Task 3.1A)</p>	<p>In what ways, if any, have the knowledge, skills, attitudes, and resources of manufacturing and/or target educators changed?</p> <p>What resources are in use at the end of the project that were not available at the beginning of the project.</p>	<p>Baseline survey data regarding perceptions (see above).</p> <p>Interviews with involved faculty and counselors.</p> <p>Resources in use and how valuable</p>	October 2006 and May 2008.	<p>Surveys collected by school liaisons and submitted to Learning Consultants.</p> <p>Interviews conducted on-site in January 2007 and May 2008.</p>

