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**NASA FACULTY FELLOWSHIP PROGRAM**

**MARSHALL SPACE FLIGHT CENTER  
THE UNIVERSITY OF ALABAMA**

**CREATION AND IMPLEMENTATION OF A WORKFORCE DEVELOPMENT  
PIPELINE PROGRAM AT MSFC**

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## **Introduction**

Within the context of NASA's Education Programs, this Workforce Development Pipeline guide describes the goals and objectives of MSFC's Workforce Development Pipeline Program as well as the principles and strategies for guiding implementation. It is designed to support the initiatives described in the *NASA Implementation Plan for Education, 1999-2003* (EP-1998-12-383-HQ) and represents the vision of the members of the Education Programs office at MSFC.

This document:

- Outlines NASA's Contribution to National Priorities
- Sets the context for the Workforce Development Pipeline Program.
- Describes Workforce Development Pipeline Program Strategies
- Articulates the Workforce Development Pipeline Program Goals and Aims
- List the actions to build a unified approach
- Outlines the Workforce Development Pipeline Programs guiding Principles
- The results of implementation

## **NASA's Contribution to National Priorities in Education**

Since the creation of the National Aeronautics and Space Administration (NASA), chartered by the Space Act of 1958 (as amended), NASA has been committed to education. That commitment continues to the present, and occupies a significant place in the *NASA Strategic Plan*. NASA's contribution to education is based on the Agency's inspiring mission, specialized workforce, close working relationship with the research and development community, and unique world-class facilities. Based on these unique attributes, NASA has created a comprehensive Education Program containing a portfolio of activities directed toward education at all levels to inspire the next generation as only NASA can.

The outcomes of NASA's activities contribute to the achievement of the Nation's science and technology goals and priorities, including educational excellence.

## **NASA Educational Excellence Outcome**

*We involve the educational community in our endeavors to inspire America's students, create learning opportunities, and enlighten inquisitive minds.*

Using this outcome as guidance for NASA's Education Program, the NASA Education Program Mission Statement is, "NASA uses its unique resources to support Educational Excellence for all as only NASA can."

It is within this context that the Workforce Development Pipeline Program has developed its Education Strategy. Just as the US Department of Education has established as its mission that "No Student will be Left Behind", NASA will take the program one step further and state that in addition, we want "No promising student in science and engineering left behind".

## **MSFC Workforce Development Pipeline Program Organizational Strategies**

### *Program Goal and Aims*

The goal of the MSFC Workforce Development Pipeline Program is to develop a highly skilled and competitive workforce for the 21<sup>st</sup> century by encouraging and involving young scholars to consider careers in technical and high skills areas.

The Workforce Development Pipeline Program aims to:

- To encourage and inspire students starting at an early age to continue their studies in math, science and technology.
- To foster an interest among students to pursue technical jobs and to track these students in a system that continually provides opportunities to students as they progress in their education.
- Produce a customer base that can support NASA's goals and objectives as well as those of our nation as a whole.

### *A new Unified Approach to the Workforce Development Pipeline Program*

A unified approach will help coordinate the efforts of several programs at MSFC thereby minimizing redundancy and maximizing impact. Most importantly, it will cause all programs to find ways of sharing data benefiting the students in the different programs. Using this approach, the Workforce Development Pipeline Program will build upon existing resources; determine methods to better showcase our programs; examine and implement methods to share knowledge and data about each program; and to start the process of determining the ROI (Return on Investment) on individual programs. By using this approach, this will allow the program to achieve high quality results that make immediate impacts on students with little additional expense. Being focused on the integrated long-term professional development of students is a new approach within NASA. This will cause systemic change in the way that we view all of our programs.

Our focus will change from implementing and conducting a program to being able to articulate very specific long-term goals and success measures in the areas that fall under the Development Pipeline Program. This program will also address the national educational goals of supplying a skill workforce to NASA and to American industry.

### *Building a Unified Approach*

#### *Actions*

- Develop a charter for the Workforce Development Pipeline Program
- Implement an HRIC (Human Resource Investment Council)
- Examine preliminary methods to share data between programs
- Conduct quarterly meetings of the HRIC

### *Implementing a Unified Approach*

#### *Actions*

- Create an internal survey to determine the needs of the future workforce
- Determine how best to market all of the programs involved in workforce development in one central “one-stop” location for the customer
- Showcase one of the programs involved in Workforce Development at each of the quarterly workforce development meetings
- Select one program to start the process of ROI (Return on Investment)
- Provide an informational seminar to inform the staffs of all participating departments on the programs offered by the Workforce Development Program.
- Assess programs to determine if their content would be appropriate for e-learning for greater outreach of students.
- Utilize the ERC network to inform educators about the Workforce Development Pipeline programs and e-learning opportunities.
- Understand the existing educational programs that address needs used in the Workforce Development Pipeline Program.
- Identify any mis-match between workforce needs and educational opportunities.
- Create an information network or system to share data about programs and the customers that use them between managers of the workforce development program.
- Understand the workforce needs of NASA in the upcoming years.
- Develop new models for training or educational programs and remove ineffective programs based on current and future workforce needs at MSFC.
- Engage educators in helping identify specific needs in their curriculum that can be addressed by our Workforce Development Pipeline Program
- Evaluate the effectiveness of how the curriculum and customer information is passed onto the next higher-level program. Programs must share data and modify content of the program to make the program into the goals of the Workforce Development Pipeline Program.

- Be opportunistic by presenting information at professional educator conferences and in school systems.
- Create an internal and external survey of employment needs to match with workforce development programs.

### *Program Assessment*

External and internal assessment efforts ensure the quality of the program, locate areas of needed improvement, and guide the efforts to achieve goals. Internal assessment should assess the effectiveness of the committee and the programs that fall under the Workforce Development program. It is important to involve the individuals that are managing the program in this process. This assessment should help guide program planning and should ensure that workforce development programs are effective, that they change with the needs of the target audiences, and they achieve a high impact for the investment.

Integrating actions benefit teamwork within all of the programs involved in the Workforce Development Pipeline Program by providing coherent support for educational excellence. This will reduce duplication of effort among our people, improve quality and ease of availability for our customers, promote cost effectiveness, and enhance better outreach of our current programs. This innovative approach taken by MSFC will assist in supporting the role of education in NASA's Strategic plan and play a vital part in developing the workforce of the 21<sup>st</sup> century.

### *Actions:*

- Select one program to start the long-term process of ROI.
- Create an internal/external panel of experts to review and comment on the Workforce Development Pipeline Program
- Collect and analyze Edcats and other data
- As the Workforce Development Pipeline Program matures, data should be tracked on former Workforce Development Pipeline Program students who enter the NASA Workforce. A questionnaire should be created and would be completed by the workforce member at the point of hiring and at the first year anniversary. This questionnaire should help create a list of best practices and further refine the programs offered in the Workforce Development Pipeline Program and assist in helping NASA improve its hiring practices. In addition, all students completing any college level program should be required to answer questions at their "exit interview" to capture feedback on their plans for future employment. Attention should be given to the reasons why they would or would not chose employment at NASA.