

MSFC Systems Engineering Leadership Development Program

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What Is A “Systems Engineering Leadership Development Program” and Why Does MSFC Need One?

Systems Engineering Leadership Development Program: A formal approach to establishing:

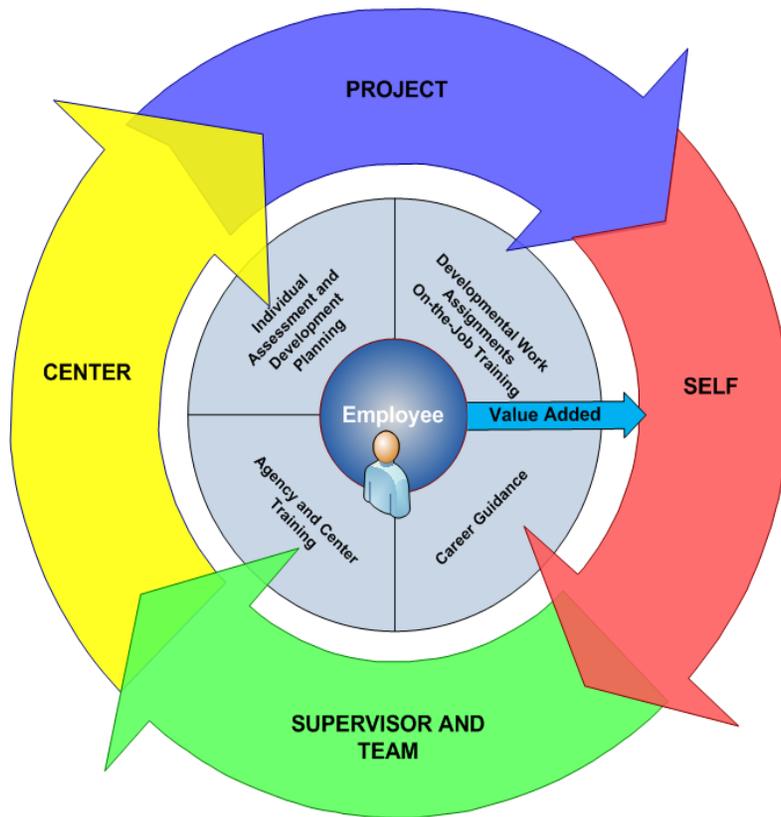
1. Competency-holders in systems engineering (SE)
2. Candidates for leadership in SE-driven jobs and other leadership positions

Why Needed:

1. MSFC projects require a steady supply of capable SE practitioners and leaders
2. An opportunity to shape our own destiny in light of the Agency push towards increased SE formality



Program Tenets



Individual Accountability

Successful participants must be highly motivated

Cost Efficiency

Use of existing training resources is maximized

Relevant Rotations

Rotational assignments/ on-the-job training in-line with core Center work

Convenient Training

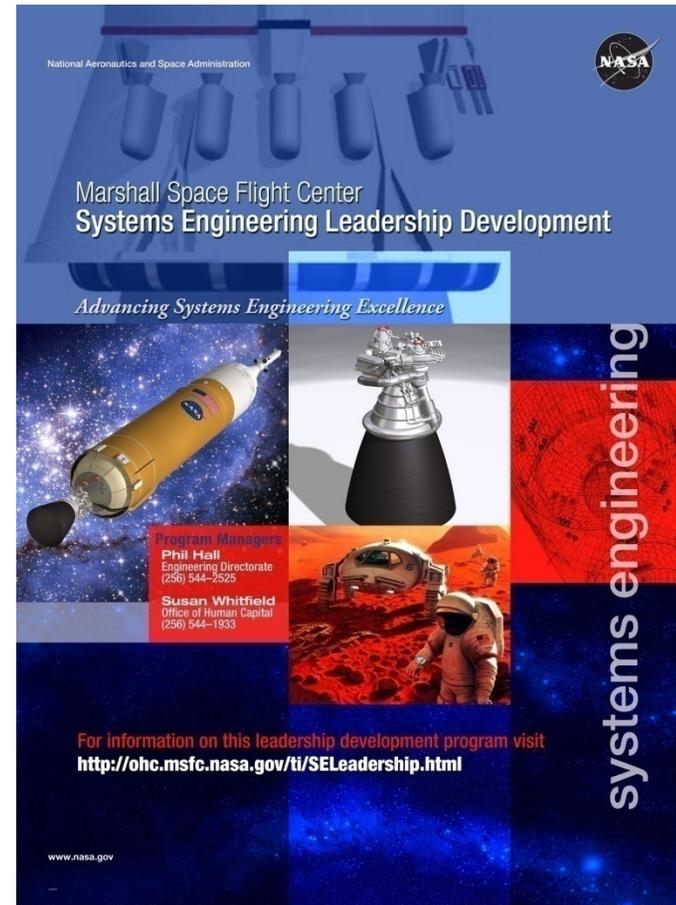
Required courses available locally and/or on-line through APPEL

Supervisor Involvement

Makes use of normal supervisor/ employee relationship for individual development planning and career guidance

Basics of MSFC Program

- ❑ Consists of two levels – Journeyman and Leader.
- ❑ Completion of each level requires:
 - ✓ Training:
 - Four (4) APPEL courses for Level I (Journeyman)
 - Four (4) APPEL courses for Level II (Leader)
 - ✓ MSFC Developmental Assignment:
 - Minimum 3 months for Level I (Journeyman)
 - Minimum 6 months for Level II (Leader)
- ❑ Timeframe for completion of each level: 2 years



MSFC Program Changes/Stats

□ Level I:

- Rotations for 6 months with large number of participants and changes in NASA direction were difficult. Rotation with new class will be 3 months and focused on needed work – i.e. failure investigations, small projects, etc.
- More rotations in SE policy development.
- Higher criteria for program acceptance

□ Level II:

- Number of accepted participants will be limited (high acceptance criteria) to elevate the skill level and importance of a rotational assignment.
- Rotations will remain at 6 months

– **Stats**

- Level 1.
- First class started in 2009 with 42 participants.
- 3 dropped out
- 29 Graduated (Acrylic award, certificate) March 2012

Survey – '12 Grads

- Quality of Program
 - Required Training Courses – 4.14
 - Team Leadership was a favorite course
 - Rotational Assignment – 3.86
 - Some would have liked more help/guidance on rotations
 - Developmental Workshops – 3.57
 - They would like more workshops
- Program Communication – 2.43
 - Need more effective communications
- Overall Value of Program – 4.00
 - Despite the weaknesses, Program has value

Survey (con't)

- Top Three Strengths
 - Rotational assignment, Training, Workshops
- Biggest Three Weaknesses
 - Communication, Rotations, Scheduling (courses)
- Value of Program to Center/Agency Mission
 - Great value to Center/Agency in developing SE's.
Good opportunity for participant
- Additional Comments
 - Issues:
 - Program completion is well documented.
 - Promotional opportunities

Backup

Level I Core Training

	Core		Alternate	
Focus Area	Course	Length	Course	Length
Overview	Fundamentals of Systems Engineering —Introduces the methods and techniques for a structured systems development process that proceeds from requirements to concept to production to operation and is based on NASA policy guidelines.	5 days	*UAH Systems Engineering Overview —Promotes a clear understanding of the fundamental concepts of systems engineering from the perspective of a systems engineer or project manager.	2 days
Foundational Application	Lifecycle, Processes, and Systems Engineering —Introduces systems engineering processes, NASA lifecycle phases, key technical reviews, and systems engineering management techniques.	3 days	Agency NPR 7123 —Introduces the policies behind NASA systems engineering processes and requirement as well as associated project management issues.	2 days
Advanced Application	Project Management and Systems Engineering —Provides valuable insight for managing and leading project and technical teams.	10 days	No alternate available	
SE Leadership	Team Leadership —Aimed at building capabilities for managing and facilitating team processes necessary to achieve successful team performance.	2.5 days	Communicating Technical Issues —Provides the foundation for communicating technical information to a varied audience and demonstrates effective methods and strategies for presenting technical issues.	2 days

***Strongly encourage participation in UAH Systems Engineering Certificate program. Completion of this certificate program may substitute for the Overview and Foundational Application courses.**

Level II Core Training

Core		Alternate	
Course	Length	Course	Length
Advanced Project Management and Advanced Systems Engineering— Supplements participants' project management and systems engineering knowledge and skills as needed to achieve successful executive leadership and management of programs.	5 days	No alternate available.	
Management of Space Technology Programs— Course examines political, organizational, and technical dynamics of organizational management at NASA as well as how the interrelationships between these factors influence program/project management processes and outcomes.	3 days	Leading Complex Projects— Designed for experienced project managers who are subsystem leads or managers of small project and who are preparing to perform as a project manager of a more complex project.	3 days
Project Management Leadership Lab— Intensive course aimed at building capabilities for managerial effectiveness to achieve project team objectives and to synthesize the project management practices learned through practice and study.	4.5 days	Assessing Project Performance – Intensive course designed to teach participants to manage earned value, risk, critical path, cost variances, configuration changes, TPM, and others.	2 days

- **CORE:** Minimum of 1 additional leadership oriented course is required. Course selection will be determined based on participant's individual needs assessment, and in alignment with the NASA Leadership Model.
- Distance Learning Options may be worked for some required coursework.
- Expected timeframe for completion: 2 year period