NASA Academy of Program/Project & Engineering Leadership (APPEL)

Developing the Technical Workforce

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To support NASA by providing individual and team support in program/project management and systems engineering.

- APPEL is NASA’s internal resource for project management and systems engineering training.
APPEL Evolution

Program and Project Management Initiative (PPMI)
- NASA: Established PPMI in response to Space Shuttle Challenger disaster.
- PPMI: Training courses on fundamentals of PM knowledge.

Transition to APPEL
- NASA: Faster, Better, Cheaper.
- PPMI/APPEL: Further emphasis on project management curriculum.

APPEL Meets Expanded PM Needs
- NASA: PM shift from pure focus on mission success to increased range of responsibility.
- APPEL: Began focusing on systems engineering training, and introduced team support services and knowledge sharing activities.

APPEL Today
- NASA: Greater emphasis on speed, cost, innovation, partnerships, and sustainability.
- APPEL: Promotes individual and team learning through our advanced curriculum, hands-on development programs, and strategic communications.
Development Training

Based in the Office of the Chief Engineer

26 YEARS of supporting the training and development goals of the NASA technical community.

CLOSELY ALIGNED with the Chief Knowledge Officer to ensure PMs and SEs have the skills and knowledge they need to advance NASA’s mission.

Goals

- Provide a common agency framework for NASA’s technical workforce.
- Refine and enhance critical job skills.
- Support systems engineering, program, and project teams.
- Supplement and enhance your formal academic education.
Aligned with NASA’s Mission

Curriculum created exclusively for developing NASA’s technical workforce.

| APPEL Project Management Development Framework | Aligned with NASA's mission and goals |
| APPEL Courses and Development Programs        | Aligned with project management and systems engineering competencies |
| APPEL Offerings                               | Aligned with NASA internal requirements and external accreditation requirements |
| APPEL Course Content                          | Revised as NASA processes and procedural requirements evolve |
Rigorous Standards Support Workforce Development

- **Accuracy**: Courses are reviewed, audited, and revised annually and/or as needed by NASA subject matter experts.
- **Alignment**: Content is aligned with NASA’s missions.
- **Relevance**: APPEL partners with agency *practitioner communities* to ensure course content is relevant to the diverse needs of NASA’s technical workforce.

<table>
<thead>
<tr>
<th>Program/Project Management</th>
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<tbody>
<tr>
<td>Systems Engineering</td>
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<tr>
<td>Earned Value Management</td>
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<tr>
<td>Project Planning and Control</td>
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<tr>
<td>Software Engineering</td>
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Over the past 5 YEARS, APPEL has trained >14,500 participants through 586 courses across 11 centers.

- Primary provider of PM&SE courses for the agency.
- APPEL coordinates with each center annually to identify training gaps and offer courses in support of center initiatives.
- Each center has an APPEL POC that practitioners can contact for information about APPEL courses and resources.
APPEL Points of Contact (POCs)

At each center, APPEL POCs are available to help practitioners interested in taking APPEL courses.

AFRC  Bridgette Washington  bridgette.n.washington@nasa.gov

ARC   Sarah Gillaudeu  sarah.s.gillaudeu@nasa.gov

GRC   Kathy Clark  kathy.m.clark@nasa.gov

GSFC  Richard Gudnitz  richard.a.gudnitz@nasa.gov

HQ    Terri Mitchell  terri.j.mitchell@nasa.gov

JPL   Tod Oliver  tod.m.oliver@jpl.nasa.gov

JSC  Zeeaa Quadri  zeea.quadri-t@nasa.gov

KSC   Tim Pirlo  timothy.e.pirlo@nasa.gov

LaRC  Travis Millner  travis.l.millner@nasa.gov

MSFC  Shelley Miller  shelley.l.miller@nasa.gov

NSSC  Cassandra Clark  cassandra.j.clark@nasa.gov

SSC   Anita Douglas  anita.w.douglas@nasa.gov
The APPEL website features a broad range of practitioner development tools.

**APPEL Website**
APPEL’s communication hub: provides information about APPEL courses, contacts, as well as links to the APPEL Catalog, PM&SE Competency Model, APPEL News, and other materials such as case studies.

**APPEL Catalog**
Interactive, one-stop resource for information on courses, curriculum, career resources, registration, and accreditations.

**PM&SE Competency Model**
Interactive model helps practitioners identify the competencies required for success in their roles at NASA.
Center Development Resource

APPEL CURRICULUM & SUPPORT

APPEL supports center-level development programs.

→ ARC
  - Ames Project Excellence Program (APEX)

→ GRC
  - Rocket University
  - Space Mission Excellence Program (SMEP)

→ GSFC
  - Systems Engineering Education Development (SEED)
  - Flight Projects Development Program (FPDP)

→ HQ
  - Presidential Management Fellows
  - SELDP
  - Project HOPE

→ KSC
  - Rocket University
  - KSC Foundations of Leadership
  - Systems Engineering Advanced Leadership Program (SEAL)

→ LaRC
  - Langley Project Management Development Program

→ MSFC
  - Marshall Systems Engineering Leadership Development Program (MSELDP)
  - Program, Planning and Control Leadership Development Program
**Hands-On Development Programs**

APPEL supports a range of development programs: Immersive learning experiences with tangible results.

<table>
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<tr>
<th>Program</th>
<th>Description</th>
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<tr>
<td>Systems Engineering Leadership Development Program (SELDP)</td>
<td>Prepares select employees to spend a year at a different center to gain SE, communication and leaderships skills.</td>
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<tr>
<td>Rocket University</td>
<td>Offers critical hands-on training to develop NASA Young Professionals as they transition into higher-profile projects.</td>
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<tr>
<td>Project HOPE</td>
<td>Enables early-career practitioners to manage a real science project and gain the knowledge and skills necessary to manage NASA’s future flight projects.</td>
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International Collaboration

APPEL actively works with NASA’s international partners to expand learning opportunities.

In partnership with CKO, conducts the International Project Management course twice annually.

- Brings together NASA and international participants to develop international teaming skills and understand respective PM challenges.
- Includes presentations by senior PMs from Europe (ESA), Japan (JAXA), and other NASA partner agencies.
Accreditations and Affiliations

American Council on Education (ACE)
- Recommends graduate credit for 11 Academy courses.

Project Management Institute
- Registered provider of Professional Development Units (PDUs).
- NASA-certified PMs can sit for PMP exam without prerequisites.

International Association for Continuing Education & Training (IACET)
- Authorized provider.

Federal Acquisition Certification of Program/Project Managers (FAC-P/PM)
- Authorized provider of Continuous Learning Points (CLP).
Curriculum
The curriculum consists of core and in-depth courses.

- **Core**: Four courses spanning foundational to advanced topics.
- **In-depth**: Supplement the core curriculum by providing deeper knowledge and skills development.

Courses are offered using a variety of delivery methods.

- Live classroom
- Virtual classroom
- Online/self-paced

Courses are highly interactive.

- Include case study analyses, group discussions, individual exercises, and simulations.
APPEL Core Curriculum

- Foundational framework.
- Builds NASA-specific expertise and capability, making extensive use of NASA case studies.
- Supplements academic and professional work experience.

<table>
<thead>
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<th>Course Title</th>
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<tr>
<td>Foundations of Aerospace at NASA</td>
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<tr>
<td>Project Management and Systems Engineering</td>
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<tr>
<td>Advanced Project Management and Advanced Systems Engineering</td>
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<tr>
<td>International Project Management</td>
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# APPEL In-Depth Curriculum

50 courses across a critical range of disciplines.

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<th>Curriculum Area</th>
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<tr>
<td>Communication and leadership</td>
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<td>Mission and safety</td>
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APPEL Courses Serve A Diverse Audience

Courses meet the development needs of practitioners at all stages of career growth.
APPEL Courses Instill Critical Skills

Course content is highly relevant to participants.

Advanced EVM
"The discussions on what to read into the data, when to take corrective actions, and things to look for to test the validity of the data will be very useful on future projects."
~ AEVM Participant

Project Management & Systems Engineering
“The class exercises allowed me to apply concepts, practices, and processes as they were presented in class. This enhanced my understanding and helped me learn how I would use the information in my real work responsibilities and assignments.”
~ PM&SE Participant

International Project Management
“The most significant insight I gained is the importance of the fundamentals about the collaborative negotiation, cross-cultural understanding, ethics, and ITAR regulations.”
~ IPM Participant
APPEL Courses Provide Value

The APPEL curriculum is specifically designed to support the NASA mission.

- Competency-based.
- Course evaluation surveys.
- Annual subject matter expert reviews.
- Alignment with NASA Procedural Requirements.

APPEL courses rate 4.21 out of 5 in terms of value to participants.
# Measuring Success

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<th>Best practice</th>
<th>APPEL training recognized as best practice by IACET.</th>
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| External credit | Courses qualify for PMI PDUs and IACET CEUs.  
|               | 11 courses eligible for graduate credit.            |
| Center approved | Centers recognize the value of APPEL courses: greater demand than APPEL can meet. |
| In demand | External organizations regularly request to attend APPEL courses (FAA, NOAA, DHS, and more). |
|             | Awarded IACET Exemplar Award for Internal Training in August 2012. |
The APPEL Team facilitates course selection and registration for participants.

**CURRICULUM TEAM**
- Ensures courses meet NASA requirements.
- Provides guidance on course content.
- Monitors survey results.

**TRAINING & SUPPORT TEAM**
- Manages the registration process.
- Helps create a seamless experience for participants.
- Provides logistical support for courses.
APPEL
Strategic Communications & Resources
APPEL Strategic Communications

Singular information resource across multiple platforms.

APPEL Website
- **APPEL Catalog**: One-stop resource for course information, registration, and career development.
- **PM&SE Competency Model**: Interactive and in sync with APPEL Catalog; supports employee development.
- **APPEL communications resources**: Articles, case studies, presentations, and formal papers.

APPEL Announcements
- Targeted communications alert key stakeholders, training officers, APPEL POCs, and practitioners to course updates, special events, and other initiatives and activities.

APPEL Social Media
- Full range of digital channels keep APPEL accomplishments and news in the forefront.

APPEL News Digest
- Monthly digital publication spotlights APPEL news, articles, videos, and more.
- More than 80,000 subscribers.
Throughout 2014, the APPEL website has seen consistent expansion of user traffic.

Over **15,000** monthly page views in September.

The high traffic on the APPEL website is largely attributable to its ease of use, relevant articles and information, and an intuitive presentation of information.
The APPEL News Digest delivers APPEL articles, interviews, videos, and other material to subscribers on a monthly basis.

More than 82,000 news subscribers.

- Throughout 2014, APPEL distribution has gained momentum.
- Both ASK Magazine and APPEL News are popular with colleges, universities, and other program management-based organizations as references for case studies, course work, and student learning.
Every month, the APPEL website reaches a wide audience.

- Users in 49 of 50 states.

**Top States**

1. California: **581 Sessions**
2. Florida: **525 Sessions**
3. Maryland: **474 Sessions**
4. Virginia: **381 Sessions**
5. Alabama: **222 Sessions**
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- Concentrated use around NASA centers.

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- Users in Europe, Canada, international space agencies, learning institutions.

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**Top Countries**
1. USA: 3,979 Sessions
2. UK: 202 Sessions
3. Canada: 199 Sessions
The FY15 catalog is interactive and entirely online.

**One-stop resource** for information on courses, curriculum, career resources, supplemental training, registration, and accreditations in support of the NASA technical workforce career development.

- **Participants can click directly from the catalog to register** for courses in SATERN.
- **Comprehensive web page for each course** provides information to help practitioners determine whether it will meet their career development needs.
PM&SE Competency Model

- Fully integrated with the APPEL Catalog.
- Highly interactive and synergistic.
- Connects competencies to individual career development goals.
- Hyperlinked to related courses.
APPEL Catalog and PM&SE Competency Model
APPEL Digital Media

Flickr
- APPEL highlights NASA’s PM&SE stories in pictures.
- Nearly 385,000 lifetime views.

YouTube
- APPEL’s video library includes development resources, lessons learned discussions, Masters with Masters forums, and much more.

Twitter
- APPEL invites NASA practitioners to share experiences in real time.
- Nearly 16,000 followers.

Facebook
- APPEL posts highlight PM&SE courses and activities.
- See what people are saying about APPEL programs.
- More than 14,000 likes.
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Thank you for attending today’s webcast.

Any questions?