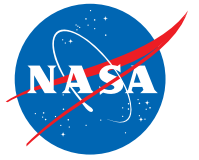National Aeronautics and
Space Administration

NASA

aPPEL academy of program/project & engineering leadership
ANNUAL REPORT
FISCAL YEAR 2016

CONTENT

ACADEMY LEADERSHIP

ROGER FORSGREN
APPEL DIRECTOR

Mr. Forsgren is the Director of APPEL. He oversees the development and implementation of new training courses, hands-on development programs, and knowledge-sharing activities for program/project managers and systems engineers across NASA.

STEPHEN ANGELILLO
APPEL DEPUTY DIRECTOR

As the APPEL Deputy Director, Mr. Angelillo is responsible for strategy, outreach, and operations of the Academy. He also leads the Academy's communications efforts, ensuring APPEL resources are available to key stakeholders across multiple platforms.

MESSAGE FROM THE APPEL DIRECTOR

Thanks so much for taking the time to read our 2016 APPEL Annual Report.

For FY 2016, APPEL delivered 146 courses and trained over 3,300 participants. In addition to our classroom training, we successfully relaunched the Systems Engineering Leadership Development Program (SELDP) and started a new class of participants. We worked closely with our stakeholders to develop several new courses and began a major collaboration with the Chief Knowledge Office to further integrate lessons learned into our coursework. Finally, we continued to build our online presence by hosting the NASA Virtual Project Management Challenge and posting interviews with project managers from across the agency.

This past year, APPEL was recertified by the International Association for Continuing Education and Training (IACET). This rigorous process helps ensure APPEL maintains the highest level of integrity as an education provider so that course participants receive the very best educational experience as well as Continuing Education Units (CEUs). The APPEL team also earned NASA's Group Achievement Award for an outstanding group accomplishment that contributed substantially to the agency's mission.

Looking ahead to FY 2017, one of the biggest challenges—and biggest opportunities—for APPEL is the enactment of the Program Management Improvement Accountability Act. This law will require federal agencies to develop strong foundational training in program/project management. Fortunately, NASA has always emphasized the value of project management training and we are committed to supporting the agency in fulfilling the requirements of this new mandate.

I would also like to thank our stakeholders throughout the agency: our subject matter experts, who help design our coursework; our course attendees, who provide us with critical course evaluations to help make our courses better; and NASA management, which has always provided strong support for workforce training.

It has been an honor for the APPEL team to support NASA and it has been my honor to lead the APPEL team. I think you'll discover, as you read through the following pages, that 2016 was a very successful year for APPEL and that we are looking forward to the challenges in 2017.

ROGER FORSGREN
APPEL DIRECTOR

ABOUT THE ACADEMY

Engineers shoot carbon dioxide snow at a test version of a James Webb Space Telescope mirror to clean it without the risk of scratching it.

Photo Credit: NASA/Chris Gunn

The Academy of Program/Project & Engineering Leadership (APPEL, also known as the Academy) supports NASA as a primary internal resource for project management and systems engineering development and training. APPEL helps ensure the agency's technical workforce has the skills and knowledge required to advance mission success.

APPEL grew out of a need, which emerged after the Space Shuttle Challenger tragedy in 1986, to strengthen the development of the technical workforce across the agency. Since then, APPEL has worked hard to raise NASA's project management and systems engineering training to a world-class level, with courses and resources that are designed to address the wide variety of dimensions involved with complex projects.

Today, APPEL delivers diverse courses to thousands of participants each year across NASA centers and supports hands-on training for agency young professionals. Online, the Academy offers development and learning resources that serve as a platform for sharing information, highlighting initiatives, and promoting digital collaboration. Across the world, APPEL actively engages with other organizations—including federal agencies, international space agencies, academia, and industry—to advance project management understanding.

EXECUTIVE SUMMARY

Every year, APPEL positions its courses and programs to support the evolving project and mission needs of NASA centers and the agency overall. In addition, the Academy aligns key activities with NASA's Strategic Plan Overarching Goals to ensure its offerings reflect agency objectives.

World-Class Training & Development

APPEL has been recognized repeatedly by internal and external organizations for the high quality of its NASA-specific courses and resources.

- In FY 2016, APPEL received the **NASA Group Achievement Award** for an outstanding group accomplishment that contributed substantially to NASA's mission.

- APPEL has been named **"best academy in the world"** three times in a row.
    - Based on a global benchmarking study of project academies conducted by Humans Systems International (HSI), a subsidiary of the Project Management Institute (PMI)®.

- APPEL has twice received the **Exemplar Training Organization Award** from the International Association for Continuing Education and Training (IACET).

- In 2016, NASA was named the "best place to work in the federal government" for the fifth consecutive year, according to a survey by the Partnership for Public Service.
    - Once again, the same survey ranked NASA's training and development capability—which includes APPEL—first among federal agencies.

NASA-centric Curriculum

In FY 2016, the Academy supported agency programs and projects by offering more than 60 diverse courses for NASA practitioners at all levels of development.

- Delivered 146 course offerings to 3,355 participants across NASA.

- Courses are based on collaborations with subject matter experts, technical leads, and practitioner communities to verify that offerings are fully relevant to the needs of the agency's technical workforce.

- APPEL also invested in the development of new courses to meet emerging training demands identified by stakeholders across the agency.

Hands-On Development

NASA's vision and mission demand a workforce with the ability to design, develop, and execute one-of-a-kind projects in aeronautics research, space exploration, and scientific discovery. Formal development and hands-on learning programs provide early- and mid-career professionals with on-the-job learning experiences.

- In FY 2016, APPEL contributed to the development of NASA young professionals by providing courses and resources to such hands-on training programs as the **Systems Engineering Leadership Development Program**, **Rocket University**, and **Project HOPE**.

Online Resources & Communications

Beyond the classroom, APPEL facilitated professional development by making a range of innovative development tools and interactive web resources available to NASA practitioners.

- Augmented existing online resources, such as the **APPEL Catalog** and **PM&SE Competency Model**, to better serve NASA practitioners in achieving their goals.

- Introduced novel interactive tools like the **PM&SE Career Development Framework** to help practitioners, supervisors, and managers chart a clear path toward professional development.

- Connected with audiences across the agency and around the world by producing three new sessions of the **NASA Virtual Project Management Challenge.**

Training & Support Services

To enhance the course selection and registration process for all NASA practitioners, APPEL's Training and Support team helps civil servants access appropriate training resources.

- Each APPEL course has a dedicated Training & Support specialist who provides information, guidance, and support throughout the course selection, enrollment, and attendance process.

In FY 2016, the APPEL team received the NASA Group Achievement Award. On November 9, 2016, the team attended a ceremony led by NASA Administrator Charles Bolden and Deputy Administrator Dava Newman to celebrate FY 2016 NASA honor award recipients. From left to right: Newman, Ramien Pierre, Donna Connell, Jessica Boss, Yvonne Massaquoi, Daniel Daly, Donna Wilson, Rob Clairmont, APPEL Director Roger Forsgren, Daniel Connell, APPEL Deputy Director Stephen Angelillo, Michelle Tyler, Kimbley Lewis, Bolden, Erin Bonilla, Kevin Magee, Jennifer Sizemore, Dallas Neener.

Photo Credit: NASA/Aubrey Gemignani

APPEL SUPPORTS NASA WITH A
WORLD-CLASS CURRICULUM

Global Leader in PM Training

In FY 2016, APPEL offered more than 60 courses specifically designed to meet the training needs of NASA's technical workforce.

- Courses supplement academic and professional work experience.

- They draw extensively on best practices and the knowledge of NASA subject matter experts to address the needs of agency practitioners.

- Course development follows established instructional design processes, which include rigorous annual audits and revisions.

APPEL Trained 3,355 Members of the NASA Workforce in FY 2016

- Delivered 146 course offerings across NASA centers.

- Attendance represented an increase over enrollment in FY 2015 (3,033), FY 2014, (3,022), FY 2013 (3,051), and FY 2012 (2,633).

Courses are Linked to NASA Competencies for Career Development

The interactive PM&SE Competency Model provides the basis for all course objectives.

- Every course corresponds directly to one or more project management or systems engineering competency that NASA considers critical to project success.

- Enables practitioners to augment NASA-specific expertise and capabilities.

- The **PM&SE Competency Model** is aligned with NASA standards, policies, and requirements.

4.4 / 5.0

Average Rating for APPEL Courses
Participants were asked to rate the value of APPEL courses on a scale of 1 to 5, with 5 being the highest.

APPEL COURSE FEEDBACK

"I feel that everything I learned in this class will be valuable to my job. I think that this class should be a prerequisite for any new hire. After coming out of this class I felt like I finally understood the NASA structure and how it works."
Participant, *Lifecycle, Processes and Systems Engineering*

"This foundations class was probably one of the top two continuing education classes I have ever taken. This was a great start to my NASA career."
Participant, *Foundations of Aerospace at NASA*

APPEL SUPPORTS NASA WITH
NASA-CENTRIC COURSES

APPEL designs its courses to be completely agency-centric.

- Based on collaborations with subject matter experts, technical leads, and practitioner communities.

- Ensures APPEL offerings are up to date and fully relevant to the needs of the technical workforce.

In FY 2016, APPEL Continued to Work Closely with NASA Centers

- Courses were held at all NASA centers.

- APPEL funded 89% of center training requests.
  - Supported center development programs, offering courses critical to the training provided by centers.

- Courses were delivered through a variety of methods, including live classroom, virtual classroom, and self-paced online offerings.
  - Course formats were highly interactive, including case study analyses, group discussion, individual exercises, and simulations.

APPEL Utilizes Global Standard to Measure Course Effectiveness

To chart the value and impact of knowledge gained through Academy courses, APPEL aligns its programs with the four-level New World Kirkpatrick Training Evaluation Model, a global standard for evaluating the effectiveness of training.

- APPEL has always gathered metrics at Levels 1 and 2, which measure participant satisfaction and learning, respectively.

- In FY 2017, APPEL will begin implementing Kirkpatrick Level 3 (behavior change) in relevant courses and Level 4 (return on expectations to the organization) for hands-on development trainings such as the **Systems Engineering Leadership Development Program** (SELDP).

- See *Measuring Course Effectiveness* to learn more about how APPEL assesses the effectiveness of training.

In FY 2016, APPEL was approached by a senior manager at Glenn Research Center (GRC) to develop a new course, Introduction to Project Management at NASA*, that would address the needs of newly appointed project managers and rising technical professionals who want to become familiar with NASA project management policy, principles, and practices. The course was added to the* APPEL Catalog *for FY 2017.*

Photo Credit: NASA/Daniel Daly

APPEL COURSE FEEDBACK

"I learned new methods, tools, and skills to manage projects. I was also provided with links to examples that I can use in my own projects at work. The hands on experience in class was extremely good. It really proved how valuable the methods and tools can be to project management."

Participant, *Project Management for Non-Technical Managers*

"I have always felt someone should write about applying project management principles in the 'real' often times chaotic project management world. This course was as close as I have seen anyone address the matter. Overlaying 'Leadership' while in a complex (chaotic) environment was perfect for me. I also was reminded about fundamentals (in a personally embarrassing manner) in an exercise which I thought was healthy and very practical. Well done."

Participant, *Leading Complex Projects*

APPEL SUPPORTS NASA WITH THE
SYSTEMS ENGINEERING LEADERSHIP DEVELOPMENT PROGRAM (SELDP)

APPEL supports NASA through the SELDP: a comprehensive program that provides leadership development, technical hands-on experience, training, benchmarking, mentoring, and coaching for mid-career professionals.

- SELDP grew out of a need, identified by NASA leadership and the Office of the Chief Engineer (OCE), for an agency-wide leadership development program to identify and accelerate the professional growth of high-potential system engineers.

- The program focus is on building specific leadership behaviors and technical capabilities that are critical to success in the NASA context.

SELDP Accelerates Career Development

SELDP participants represent a diverse group of highly qualified individuals from all NASA centers.

- More than 75 participants have graduated from SELDP since 2008.

- A new SELDP class was convened for FY 2016-17.

- FY 2016-17 participant assignments span key agency initiatives, including Mars 2020, Quiet Supersonic Technology (QueSST), and BioSentinel.

- Past assignments included the Juno mission, Space Launch System (SLS), and Mars Science Laboratory (MSL) Curiosity rover.

FY16-17 SELDP participants joined APPEL team members during orientation in August 2016. Front row: David Rutishauser, Moses Adoko*, Stacey Bagg, Leslie Ringo, Kevin Magee (APPEL team), Lisa Smith, Paul Mogan. Back row: Mason Clairmont, Robert Rivera, Rocko Bund (APPEL team), Sean Laughter, Cindy Zook*, Roger Forsgren (APPEL Director).
*Not an SELDP participant.

Photo Credit: NASA/Cindy Zook

SELDP Recognized for Excellence

In FY 2016, SELDP was nominated for the Leadership Excellence And Development (LEAD) award for Innovation in Deployment of Leadership Programs.

4.7 / 5.0 | Alumni Rating for SELDP
On a scale from 1 to 5, with 5 being the highest, SELDP alumni were asked to rate the value of the program.

SELDP SUPPORTS PROFESSIONAL DEVELOPMENT

"This program has not only transformed my career, it has transformed my life. It was amazingly effective whereas a plethora of other "leadership" training had only scratched the surface. This program helped me find the passion that I have for NASA and to effectively channel that passion with positive leadership techniques into constructive change as well as fueling the passion of others. Privately, this program helped me re-invent myself and to find my passion in all aspects of my life and gave me tools that pay dividends EVERY day. Truly a life-changing and career changing program that was led by true geniuses of leadership."

JSC participant, SELDP 2010

"SELDP provides world-class leadership instruction, work experiences to fill in gaps and a peer-class second-to-none that both challenges and motivates our development. The work experiences require a genuine leadership role in a real development program. The coursework is designed to amplify leadership skills and deal with challenges. This is shared across a group that continues to hold each other accountable for our leadership goals. SELDP was the primary reason for me stepping into my current position."

JSC participant, SELDP 2012

APPEL SUPPORTS NASA WITH
ONLINE COMMUNICATIONS
& RESOURCES

Unique Web-Based Tools to Promote Professional Development

APPEL provides a range of resources, available on the Academy website, that support training and career development for the NASA technical workforce. The Academy also delivers targeted communications to stakeholders regarding critical updates, emerging news, and other information.

The APPEL website is a dynamic resource that houses the Master Schedule of APPEL courses and information on course registration as well as the following tools and materials:

- **APPEL Catalog**, an online compilation of individual web pages for more than 60 APPEL courses, providing detailed course descriptions with short video introductions so prospective attendees can sample each offering.

- **PM&SE Competency Model**, a novel development resource that helps stakeholders clearly define competencies and points them toward the appropriate coursework to enhance competency-related skills.

- **PM&SE Career Development Framework**, a unique tool designed to help practitioners, supervisors, and managers chart a clear career development path.

- *APPEL News*, which annually publishes more than 70 articles for the project management and systems engineering communities.

- *APPEL News Digest*, a monthly digital publication that reaches over 65,000 subscribers worldwide.

- A **robust case-study collection** highlighting NASA-specific lessons learned.

- **Archived materials** from the *APPEL News Digest*, *ASK Magazine*, *ASK the Academy*, and *ASK OCE* that share valuable knowledge with NASA's technical workforce and the greater project management and systems engineering communities, universities, and other institutions.

- **Notable social media interactions** and links to the Academy's social media channels, where APPEL engages with stakeholders to share knowledge, celebrate NASA programs and projects, and discuss agency initiatives.

- **Featured APPEL videos** and a link to the **Academy YouTube Video Library**, which houses APPEL's collection of interviews with individuals across NASA.

In FY 2016, APPEL interviewed Mark Wiese, then-chief of the Flight Project Office in NASA's Launch Services Program (LSP) at Kennedy Space Center (KSC). (Wiese has since been promoted to deputy administrator for Safety and Mission Assurance at KSC.) The video, which is part of the APPEL Video Library, was created to help NASA practitioners understand more about how the LSP supports agency launches and commercial initiatives. An **APPEL News** *article was developed to expand on the discussion in the video and highlight Wiese's experience in facilitating cultural shifts at the agency.*

Video Credit: NASA APPEL/Daniel Connell

APPEL COMMUNICATIONS SPOTLIGHT

In August 2016, **APPEL News** *conducted an interview with Dr. Dale Crossman, a retired NASA program manager and expert in professional development. APPEL then reached out to diverse audiences, including the Office of Human Capital Management, to share Dr. Crossman's insights into the value of project management training, even for hands-on engineers who are not following a project management career track, and why the tools and techniques associated with project management can be valuable to every engineer at NASA.*

Sharing the insights and expertise it uncovers through interviews, Virtual PM Challenges, and other initiatives is a key way that APPEL helps advance learning and development at NASA.

NASA Virtual Project Management (PM) Challenge

APPEL produces the NASA Virtual PM Challenge, an online dialogue series focused on critical aspects of project management. Sessions are webcast live and available to NASA civil servants, contractors, and the general public. Archived sessions are available for on-demand viewing.

APPEL delivered three Virtual PM Challenge sessions in FY 2016:

- *Why Don't They Just Give Us the Money? Project Cost Estimating and Cost Reporting*

- *Project Derailed? Get Back on Track with Schedule and Cost*

- *Considering It All for Project Success: Dissenting Opinions at NASA*

The FY 2016 Virtual PM Challenge sessions received 1,724 total views.

- Session 1: 307 live/497 on demand.

- Session 2: 248 live /296 on demand.

- Session 3: 197 live/179 on demand.

The audience consisted primarily of NASA civil servants and contractors.

- The majority were program/project managers, followed by systems engineers.

- Viewers spanned all career levels.

External viewers included individuals and groups from:

- Federal agencies

- Industry

- Academia

- Project management organizations

4.2 / 5.0

Satisfaction Rating for Virtual PM Challenge
On a scale from 1 to 5, with 5 being the highest, viewers were asked to rate their satisfaction with the Virtual PM Challenge sessions.

During FY 2016, APPEL produced three NASA Virtual PM Challenges. The first, Project Derailed? Get Back on Track with Schedule and Cost*, featured Vernell Jackson, Systems Resource Manager in the Applied Engineering and Technology Directorate at Goddard Space Flight Center (GSFC), and Cynthia Simmons, Associate Division Chief of the GSFC Instrument Systems and Technology Division. The second (left),* Why Don't They Just Give Us the Money? Project Cost Estimating and Cost Reporting*, featured Doug Comstock, Director of NASA's Cost Analysis Division (CAD), Mary Beth Zimmerman, Branch Chief for NASA's Portfolio Analysis Branch in the Strategic Investments Division, and Kristin Van Wychen, Senior Analyst in the Government Accountability Office (GAO) Acquisition and Sourcing Management Team. The third,* Considering It All for Project Success: Dissenting Opinions at NASA*, featured Peter Spidaliere, Mission Systems Engineer at GSFC, and Dr. Nigel Packham, Manager of the Flight Safety Office at Johnson Space Center (JSC). APPEL's Ramien Pierre moderated each event.*

Photo Credit: NASA

VIRTUAL PM CHALLENGE FEEDBACK

"I'm glad the session is available on archive, and I plan to show it to my project leads shortly. This is a critical topic, and with an ever-changing workforce, is always worth reiterating the importance of this process."
    Attendee, *Considering It All for Project Success: Dissenting Opinions at NASA*

"I never realized the importance of dissenting views! This webinar was very important. Thank you for a topic that needed to be discussed and aired."
    Attendee, *Considering It All for Project Success: Dissenting Opinions at NASA*

APPEL SUPPORTS NASA WITH
CUSTOMER-FOCUSED TRAINING & SUPPORT

APPEL's Training & Support team is dedicated to facilitating the course selection and registration process for all NASA practitioners. The ultimate goal is to help participants access the appropriate training resources to enhance skills and knowledge needed to advance mission success.

During FY 2016, APPEL's Training & Support division assessed customer satisfaction through an ongoing series of electronic surveys designed to determine practitioner, instructor, and APPEL Center Point of Contact (POC) satisfaction with APPEL.

4.8/5.0

Satisfaction Rating
On a scale from 1 to 5, with 5 being the highest, key stakeholders were asked to rate their satisfaction with APPEL during FY 2016.

PRACTITIONER & INSTRUCTOR FEEDBACK

"I love the course website. I find all the information I need. If I have a question, I can go to the training specialist and receive a prompt response."
Participant, *Lifecycle, Processes and Systems Engineering*

"NASA APPEL and its contractors fall all over themselves to provide great service. No surprise you got training organization of the year!"
Instructor, *Passing the Project Management Professional (PMP)® Exam*

"The staff is always responsive and always provides the 'extra check-ins' to ensure that the logistics are on track. They go well beyond the basics and are always quick to respond to employee inquiries. I find it helpful that they will always include the [NASA] center in conversations with employees. This keeps us connected to the process!"
APPEL Center POC, Stennis Space Center

APPEL SUPPORTS NASA WITH
KEY INNOVATIONS IN FY 2016

Every year, APPEL meets the challenge of delivering high-quality courses, events, and resources to support the evolving demands of NASA's technical workforce.

## New Courses and Critical Course Updates

In FY 2016, APPEL developed new courses for the NASA technical workforce to be formally introduced into the APPEL curriculum in FY 2017:

- *Introduction to Project Management at NASA*

- *Federal Acquisition Regulations (FAR) Overview*

- *Contract Management Principles and Practices*

- *Overview of Contracts*

New Interactive Development Tool

Introduced in early FY 2016, the interactive PM&SE Career Development Framework is designed to support practitioners, supervisors, and managers by helping them determine which courses and activities will enhance competencies in current positions and support future development aspirations.

- Brings together resources from around the agency.

- Complements existing interactive resources, such as the **APPEL Catalog** and **PM&SE Competency Model**.
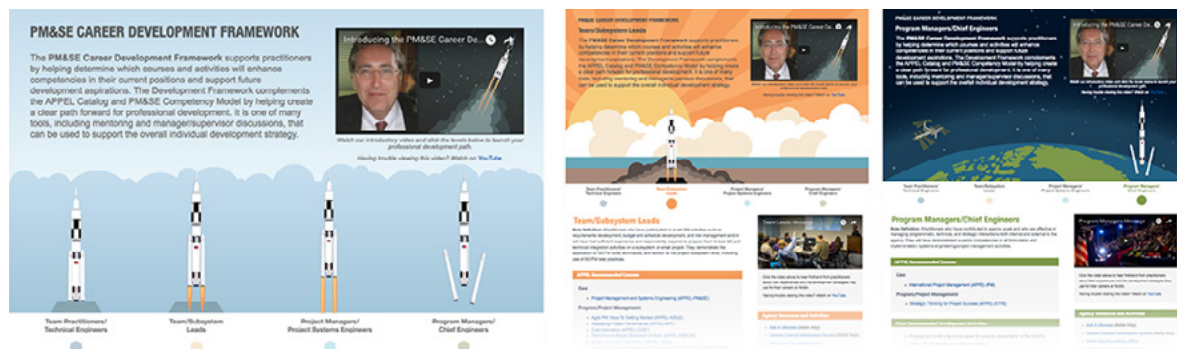
New Registration Model and Reminder Feature

For FY 2016, APPEL introduced a new quarterly course registration model.

- Shortened the registration period considerably, streamlining the experience for all involved.

- Developed a novel feature to alert interested participants when registration opens for a particular course in an upcoming quarter.

New Standards for Quality Learning Programs

APPEL created the FY-16 Standards for Quality Learning Programs.

- Documents APPEL's strategies, procedures, and processes for maintaining its position as a world-class academy and global leader in project management training.

- Defines APPEL's methodology across 10 standard categories required to sustain a rigorous training program and for meeting external accreditation requirements.

- Showcases the high standards associated with APPEL programs to internal and external stakeholders.

COURSE DEVELOPMENT AND REFINEMENT

APPEL designs its courses to meet evolving NASA needs.

- In FY 2016, APPEL developed Introduction to *Project Management at NASA*: a course for newly appointed project managers and rising technical professionals who wish to become familiar with NASA project management policies, principles, and practices.

- Based on participant feedback, APPEL reviewed and revised *Leading Complex Projects and Project Management for Non-Technical Managers* to ensure the courses are well aligned with the needs of agency practitioners.

APPEL SUPPORTS NASA WITH
COLLABORATIONS TO ADVANCE AGENCY INITIATIVES

A key component of APPEL's ability to satisfy the training and development needs of the agency's technical workforce is its commitment to developing partnerships across NASA and with external organizations.

Ongoing APPEL Collaborations

- **The Academy regularly partners with the Office of the Chief Knowledge Officer (CKO)**, which fosters knowledge management across NASA, as part of APPEL's effort to ensure courses are infused with agency lessons learned.

- **APPEL collaborates with subject matter experts, technical leads, and practitioner communities** to ensure courses are completely NASA-centric, up to date, and fully relevant to the diverse needs of the agency's technical workforce.

- **APPEL collaborates with NASA centers each year,** using a streamlined process incorporating automated tools and surveys, to identify training gaps so courses support center initiatives and missions.

- **The Academy maintains awareness of requirements from external stakeholders,** such as the Government Accountability Office (GAO), the Office of Management and Budget (OMB), and the Aerospace Safety Advisory Panel (ASAP), to confirm the curriculum reflects current recommendations.

- **APPEL partners with such education and training organizations** as the Project Management Institute (PMI)®, the International Association for Continuing Education and Training (IACET), and the NASA Federal Acquisition Certification for Program/Project Managers (FAC-P/PM) program to ensure participants receive appropriate course credit to achieve their professional development goals.

- **APPEL reaches out to participants, instructors, and center stakeholders** to solicit feedback, which is used to improve process performance and ensure courses address emerging needs.

- **APPEL collaborates regularly with NASA's Office of the Chief Information Officer** (OCIO) to maintain alignment between the APPEL website and OCIO updates and mandates.

- **APPEL makes the Academy Center for Excellence (ACE) facility available** to other organizations at Kennedy Space Center (KSC) to help fill the gap left behind by a shortage of classroom and meeting space across the center. As a result, APPEL classrooms account for approximately 40% of classroom space on center.

Key 2016 Collaborations

Throughout FY 2016, APPEL collaborated with diverse internal and external organizations to support the training and development of the NASA technical workforce. These included:

- NASA Earned Value Management (EVM) communities
- NASA Headquarters (HQ) Acquisition Group
- NASA Office of Human Capital Management (OHCM)
- NASA Project Planning Analysis and Control (PP&C) communities
- NASA Safety Center (NSC)
- NASA Science Mission Directorate (SMD)
- NASA Science Office Mission Assessments (SOMA)

- NASA subject matter experts
- APPEL Center Points of Contact (POCs)
- City of San Diego "Mayor's Performance & Analytics" team
- Federal Aviation Administration (FAA)
- Government Accountability Office (GAO)
- Glenn Research Center (GRC) representatives
- Quiet Leadership Institute
- U.S. Air Force

Collaboration with International Partners

International collaboration in space exploration is increasingly the norm. Programs and projects are becoming more bold, complex, and expensive, and international organizations are finding new ways to work together to pursue common objectives. For FY 2016, APPEL continued to collaborate with NASA's international partners through the *International Project Management* (IPM) course.

- APPEL hosted two week-long IPM courses in Cocoa Beach, Florida.
- The courses brought together 80 NASA project team members with 32 counterparts from 10 different countries, who were nominated by International Program/Project Management Committee (IPMC) member organizations
- Included modules on the programs and project management approaches of NASA, the European Space Agency (ESA), the Japanese Aerospace Exploration Agency (JAXA), the Centre National d'Etudes

Spatiales (CNES), the German Aerospace Center (DLR), and the Canadian Space Agency (CSA).
- Featured a module on the perspectives of space industry participants supporting collaborative international projects.
- Provided training on negotiating successfully in a multicultural environment as well as differing cultural and ethical considerations.

APPEL SUPPORTS NASA WITH
EARLY-CAREER HANDS-ON DEVELOPMENT PROGRAMS

APPEL supports NASA's need for a workforce with the ability to design, develop, and execute one-of-a-kind projects in aeronautics research, space exploration and technology, and scientific discovery.

- Formal development programs and hands-on learning provide early-career professionals with on-the-job learning experiences that accelerate their professional development and readiness to lead.

- Through **Rocket University** and **Project HOPE** [Hands-On Project Experience], APPEL facilitates the development of the next-generation workforce as they transition into higher-profile projects at NASA.

Rocket University

Rocket University ("Rocket U") is a NASA training and development effort designed to give early-career employees hands-on project experience throughout the full life cycle of a flight project.

- Since 2012, the Academy has partnered with NASA's Rocket U program through consulting and course offerings as part of its commitment to hands-on training and development for the NASA workforce.

- In 2016, Rocket U team members from Glenn Research Center (GRC) initiated a project called Hyperspectral HAB [harmful algal blooms] Detection via Remote UAV Sensing (HyDRUS) to serve the interests and needs of the local community while advancing innovations in technology to benefit NASA and the nation.

- Underscoring its value to the region, the HyDRUS program was awarded partial funding through the State of Ohio Sea Grant program.

Project HOPE

Project HOPE is a cooperative workforce development program sponsored by NASA's Science Mission Directorate (SMD) and supported by APPEL.

- HOPE gives teams of early-entry NASA employees a chance to propose, design, develop, build, and launch a suborbital flight project, such as a sounding rocket, balloon, aircraft, CubeSat, or suborbital reusable launch vehicle.

- The objectives of each 18-month program are to enhance the technical, leadership, and project skills of practitioners in their early careers as they fly an Earth, space science, or technology investigation beneficial to the SMD.

- In FY 2017, the Project HOPE 5 team from Goddard Space Flight Center (GSFC) will focus on the East Pacific Origins and Characteristics of Hurricanes (EPOCH) project.

APPEL SUPPORTS NASA BY
MEASURING AUDIENCE ENGAGEMENT

In FY 2016, APPEL continued to expand its support of NASA initiatives and news through online and social media engagement.

APPEL leveraged tools such as Google Analytics for insight into its audience. The wealth of data enabled APPEL to fine-tune its online and social media activities in order to expand the Academy's value to NASA.

APPEL Website Resource Metrics

Throughout FY 2016, user traffic increased on the APPEL website.

- The total number of page views for the website was 195,113, compared with 181,402 for FY 2015.

- The APPEL Catalog received more page views than any other APPEL resource except for the website itself.

- Views for both the PM&SE Competency Model and the PM&SE Career Development Framework increased in FY 2016, underscoring their value as core elements in charting a clear path toward career development for the NASA technical workforce.

APPEL Social Media Metrics

The Academy utilizes a full range of digital channels to keep NASA news and accomplishments in the forefront. Notable events in FY 2016 included:

- Tweets highlighting a "This Month in NASA History" article about the first aircraft in the NASA-Air Force lifting body program and an interview with NASA engineer Stuart McClung about Orion parachute tests.

- On Facebook, APPEL reached more than 9,000 users with a link to a weekly NASA video update on the International Space Station. The Academy also used the platform to promote sessions of the APPEL-produced NASA Virtual PM Challenge.

Continuing a trend from previous years, APPEL experienced notable growth across social media in FY 2016, contributing to the Academy's robust lifetime statistics:

TWITTER	FACEBOOK	YOUTUBE	FLICKR	ITUNES U
19,044 Followers	16,677 Likes	153,082 Views	721,169 Views	149,181 Views

APPEL SUPPORTS NASA BY
MEASURING COURSE EFFECTIVENESS

NASA practitioners rely on APPEL to deliver effective courses, programs, and resources. APPEL does so through external accreditation, course evaluation and feedback, benchmarking, and alignment with policies and requirements.

Accreditation

Project Management Institute (PMI)®

- APPEL is a Registered Education Provider (R.E.P.) with PMI, and was reauthorized for a new three-year term in FY 2016. The PMI R.E.P. provides an independent validation of the APPEL project management curriculum and a valuable link to the project management community at large.

- APPEL has also obtained permission from PMI to waive the education requirement for the PMP exam for any current holder of the NASA FAC-P/PM credential. NASA is the only federal agency to be recognized by PMI in this manner.

International Association for Continuing Education and Training (IACET)

- The Academy retains Accredited Provider status with IACET, and was reauthorized for a new five-year term in FY 2016. APPEL is a **2012 and 2015 recipient of the IACET Exemplar Award for Internal Training**.

- The American National Standards Institute (ANSI)/IACET standard is the benchmark for continuing education and training processes, practices, and methodologies by which APPEL is measured in this review.

- Demonstrated compliance with this standard provides another external validation of the excellence of the APPEL program when compared to other educational organizations.

Federal Acquisition Certification for Program/Project Managers (FAC-P/PM)

- APPEL continues to assist the centers, Office of the Chief Information Officer (OCIO), and NASA Headquarters (HQ) in the administration of the Office of Management and Budget (OMB)-mandated FAC-P/PM.

- APPEL courses support the recertification process for FAC-P/PMs.

Course Evaluation and Feedback

- APPEL aligns its programs with the four-level New World Kirkpatrick Training Evaluation Model, a global standard for evaluating the effectiveness of training.

- APPEL has always gathered metrics at Levels 1 and 2, which measure participant satisfaction and learning, respectively.

- In FY 2016, APPEL began moving toward initiating Level 3 (behavior change) in relevant courses and Level 4 (return on expectations to the organization) for select hands-on development trainings.

- APPEL implements utilization metrics and user surveys to solicit customer feedback in order to enhance course offerings as well as training support.

- New assignment data, supervisor interviews, and meetings with senior leaders at NASA centers and mission directorates provide input from key stakeholders.

External Validation

APPEL regularly performs benchmarking with internal and external organizations, such as Disney, the Federal Aviation Administration (FAA), the National Science Foundation (NSF), Defense Acquisition University, Embraer, the German Aerospace Center (DLR), and Shell Oil Company.

- In FY 2016, APPEL was benchmarked by the FAA, U.S. Air Force, and City of San Diego.

Alignment with NASA Policies and External Requirements

- The Office of Management and Budget (OMB) provides approval of the project management certification process.

- APPEL performs activities supporting NASA's Corrective Action Plan to remove NASA Acquisition Management from the General Accountability Office's (GAO) High Risk List.

- APPEL activities respond to direction provided by the Aerospace Safety Advisory Panel (ASAP).

- APPEL courses and offerings are aligned with NASA Procedural Requirement (NPR) 7120.5 and NPR 7123.1. Where appropriate, certain courses are also aligned with additional, relevant NPRs.

- APPEL courses and offerings are in accordance with briefings to NASA management councils and senior leaders.

APPEL LOOKS FORWARD TO
SUPPORTING NASA IN FY 2017

High-quality, effective courses. Targeted development opportunities. Innovative resources. These are just some of the new initiatives, programs, and audience-engagement activities that APPEL has planned for FY 2017, including:

- Supporting NASA in meeting the requirements of the new Program Management Improvement Accountability Act.

- Adding new courses to the **APPEL Catalog**.

- Initiating New World Kirkpatrick Training Evaluation Model Level 3 in relevant courses and Level 4 for select hands-on development programs.

- Conducting additional sessions of the **NASA Virtual Project Management Challenge**.

- Enhancing the value of the **APPEL website** and increasing audience engagement through social media initiatives.

- Providing career development opportunities through such programs as the **Systems Engineering Leadership Development Program**.

aPPEL academy of program/project
& engineering leadership

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