



# Northbridge Public Schools

## Northbridge School Committee

87 Linwood Avenue, Whitinsville, Massachusetts 01588 (508) 234-8156 FAX (508) 234-8469 [www.nps.org](http://www.nps.org)

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Michael LeBrasseur, Chairperson, [mlebrasseur@nps.org](mailto:mlebrasseur@nps.org), Joseph Strazzulla, Vice-Chairperson,  
Michael Clements, Kate Tracy, Randi Zanca

### Northbridge Public Schools School Committee Meeting Friday, March 17, 2017 3:00 PM Northbridge Public School Administration Building

- I. Call to Order (3:00PM)
- II. Attendance
- III. Action
  - a. Field Trip-Overnight, Out-of-State Trip for NASA ICED
- IV. Adjournment



Catherine Stickney &lt;cstickney@nps.org&gt;

## Fwd: NASA Draft Agenda & Cost

1 message

James Gorman &lt;jgorman@nps.org&gt;

Thu, Mar 9, 2017 at 2:00 PM

To: Catherine Stickney &lt;cstickney@nps.org&gt;

Cc: Amy Allen-Magnan &lt;amckinstry@nps.org&gt;, William Bishop &lt;wbishop@nps.org&gt;, Patrick Rossi &lt;prossi@nps.org&gt;

FYI

----- Forwarded message -----

From: James Gorman &lt;jgorman@nps.org&gt;

Date: Thu, Mar 9, 2017 at 1:52 PM

Subject: NASA Draft Agenda &amp; Cost

To: "jgorman@nps.org" &lt;jgorman@nps.org&gt;

To NASA Langley Field Trip attendees and Parents/Guardians:

I received the official invite from NASA Langley this morning. It is attached below. We have rooms booked at the Red Roof Inn (196 Ballard Court, Virginia Beach, VA 23462) which provides breakfast and has a pool. We have 3 student rooms reserved so there will be 3-4 students per room. It is about 30 minutes from NASA Langley Research Center. The Marra family has donated their 12 passenger RV for us to travel in and they are paying for all the transportation costs. This saved us over \$7000! The Superintendent is working out the details with them. Mr. Marra will be chaperoning the trip as well. **The cost of the trip is \$170** which includes the lodging, travel, museum tickets and movie theater ticket. Food is on their own. The money will be due Friday, March 17th. Checks can be made out to James Gorman. Below is the participant list as well as a Draft Trip Agenda for the trip. Their names have been provided to NASA fso that their security badges will be ready when we arrive.

Chaperones:

- James John Gorman (NHS teacher)
- Robert Leander Marra - parent

NHS Students:

1. James Matthew Ciras
2. Devon Michael Foster
3. Dylan Robert Marra
4. Joshua George VanBatenburg
5. Marc Terrence LeBlanc
6. Jason Michael Hardina
7. Alex Jeffrey Chase
8. Christopher Thomas Brouwer
9. Alfred James Gagner

### Draft NASA ICED 2017 Agenda

#### Wednesday, March 22nd

- Depart NHS for VA @ 4 AM (~550 mile journey/ ~10 hr drive time)
- Check into Red Roof @ 196 Ballard Court, Virginia Beach (Virginia), VA 23462
- Movie theater visit for some relaxation

#### Thursday, March 23rd

- Morning: NASA ICED Epic Challenge Student Exposition (students are presenting between 9 and 10 AM)
- Afternoon: student tours of NASA Langley Research Center & Teacher Workshop

#### Friday, March 24th

- Visit Virginia Air & Space Museum
- probable educational program: Mars Colony**

- Visit to Virginia Beach board walk

**Saturday, March 25th**

- Depart VA for NHS - On the way there will be the possibility of stopping in Washington DC to see the monuments.
- Arrive home in the evening.

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James J. Gorman  
Science Teacher  
Northbridge High School  
508-234-6221 x 2325



Follow me on Twitter @MrGorman1

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James J. Gorman  
Science Teacher  
Northbridge High School  
508-234-6221 x 2325



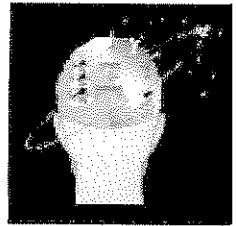
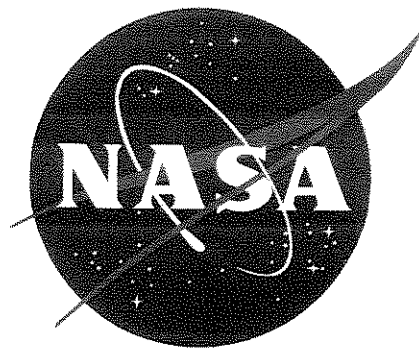
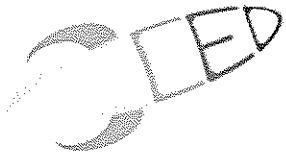
Follow me on Twitter @MrGorman1

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**ICED Educator Workshop 2017 Announcement-Flyer rev 1.pdf**  
3445K



# The Epic Challenge Program and the Future of Learning

Student Exhibition & Educator  
Workshop

NASA Langley Research Center  
Hampton, Virginia  
March 23, 2017



## Welcome!

You are cordially invited to participate in an educational workshop we are hosting at NASA's Langley Research Center on March 23<sup>rd</sup>, 2017. We will be showcasing some of the results of the NASA Epic Challenge Program and the Innovative Conceptual Engineering Design (ICED) methodology which we developed to infuse creativity and innovation into the engineering design process and apply it to conceive solutions to the complex, engineering challenges. Students, educators, and faculty from high schools in Virginia, Massachusetts, New Jersey, and Finland will exhibit their experiences and share their ideas on: pedagogy, curriculum development, learning dynamics, and student assessment. The workshop is open to the public and will be broadcast live for those who cannot attend and wish to participate virtually (<https://dmv.cso.nasa.gov/flex.html?roomdirect.html&key=WST6bna6MQ9I2WpPkFzWwJrN3U>).

### Arrival and Badging:

All visitors will arrive at the NASA Langley Badge and Pass Office, Building 1308, at approximately 7:30 AM where you will receive your badge and one-day pass to the day's event. Please make sure you have notified Ms. Tamika Coleman ([tamika.coleman@nasa.gov](mailto:tamika.coleman@nasa.gov) , 757-864-1429) of your intent to attend and provide her with your required information to ensure your badges will be ready for pick up. Closest parking for the workshop is adjacent to building 1195 (see map below). Coffee and refreshments will be provided in the primary meeting room in building 2102 (Rooms Reid I) and the agenda for the workshop is provided below.

### Directions and Map of Facilities (NASA LaRC):

All visitors will arrive at the NASA Langley Badge and Pass Office, Building 1308, at approximately 7:30 AM where you will receive your badge and one-day pass to the day's event.

#### **From Newport News-Williamsburg International Airport**

Depart airport toward Bland Blvd  
Turn left onto SR-143 East / Jefferson Ave  
Take ramp right for I-64 East toward Norfolk / Hampton  
At Exit 261B, take ramp right and follow signs for Hampton Roads Center Pkwy  
Take ramp right and follow signs for Magruder Blvd / SR-134  
Turn left onto SR-134 North / Magruder Blvd  
Take ramp right for SR-172 North / Commander Shepard Blvd toward NASA / LAFB  
Turn right onto Langley Blvd to LaRC main entrance

#### **From Norfolk International Airport**

Depart airport onto Norview Ave  
Continue on SR-247 / Norview Ave  
Take ramp right for I-64 West / Hampton Roads Beltway toward Richmond / Hampton At Exit 262B, take ramp right for SR-134 North / Magruder Blvd toward Poquoson / NASA  
Take ramp right for SR-172 North / Commander Shepard Blvd toward NASA / LAFB  
Turn right onto Langley Blvd to LaRC main entrance

### ICED Epic Challenge Program:

Innovative Conceptual Engineering Design (ICED) is a proposed methodology for infusing creative problem solving and innovation within a team-oriented, problem-based learning environment. Implementation of the ICED methodology in this specific program attempts to solve several critical problems facing science, technology, engineering, and math (STEM) education and STEM-related careers in the US such as: the decline in enrollment and achievement in STEM degrees and careers and the early attrition of undergraduate students from STEM programs of study. The ICED program is an integrated approach to teaching basic engineering concepts and problem solving techniques focused on solving real-world, epic challenges facing society. These complex, multidisciplinary challenges provide the inspiration and integrated curriculum for multiple years of study.

The ICED methodology is based on the creation of psychologically-safe virtual and physical environments to solve real-world engineering problems. Throughout this process, students are encouraged to explore, experiment, fail, discover, and learn. It is a program where critical thinking and the questioning of ideas, concepts and even “established” facts and theories is celebrated. The methodology draws upon the teaming of very *diverse* groups of students, engineers, scientists, designers, artists, etc. to explore an open-ended design space and exercise the analytical/logical side of their brain (the left hemisphere) and associated skills as well as the artistic/creative/innovative right hemisphere to conceive and *develop* innovative solutions.

As mentioned earlier, the ICED methodology focuses on the very early “conceptual design” phase of the design process. This allows rules regarding the level of rigor involved in the analysis, design, and test phases of the development cycle to be relaxed in order to intelligently and rapidly conceive, prototype, evaluate and mature as many ideas as possible. This consequently allows for potential failure mechanisms to be identified and addressed early in the design process. The idea for teaching and utilizing this methodology for project-based learning and STEM outreach was inspired by work to identify the cause of the Space Shuttle Columbia accident, and to develop technologies to predict and repair critical damage to the vehicle in the event of a subsequent debris strike prior to landing. Ideas to repair a damaged wing leading edge were rapidly developed and matured using this methodology and flown on the Return-to-Flight Space Shuttle mission following the Columbia tragedy (STS-114) and all subsequent Shuttle missions. Student teams working on one such epic challenge, how to safely land a space capsule on land, successfully analyzed, designed, fabricated and tested a feasible solution which saved considerable mass and significantly increased on-orbit habitable volume. A problem which NASA had been trying to solve for over 50 years!

*For more information regarding ICED and the Epic Challenge Program, please see links below:*

*Link to Epic Challenge Program Video: <https://vimeo.com/110187381>*

*Link to Epic Challenge Program Papers::*

*[https://drive.google.com/drive/folders/0B84i3cJ\\_nNa0RniCMFh1YW1rTUE?usp=sharing](https://drive.google.com/drive/folders/0B84i3cJ_nNa0RniCMFh1YW1rTUE?usp=sharing)*

*Link to Event Info: [https://drive.google.com/folderview?id=0B84i3cJ\\_nNa0M3JG60stNDRJR28&usp=sharin](https://drive.google.com/folderview?id=0B84i3cJ_nNa0M3JG60stNDRJR28&usp=sharin)*

*[https://drive.google.com/folderview?id=0B84i3cJ\\_nNa0M3JG60stNDRJR28&usp=sharin](https://drive.google.com/folderview?id=0B84i3cJ_nNa0M3JG60stNDRJR28&usp=sharin)*

## Agenda

The day will begin with a short introduction and brief description and history of the Epic Challenge Program and the ICED methodology. This will be followed by student and educator presentations of this year's program beginning with our newest university and high-school partners from Finland and followed by our partnering university, Virginia Tech and followed by high schools in New Jersey (Bergen Academies and Moorestown HS) and Massachusetts (Northbridge HS). Epic Challenge educators will discuss curriculum design, course content, and student expectations while visiting students will meet a tour guide and walk to several nearby facilities conducting research on space exploration. We will select our lunch in the NASA Cafeteria (B2101) and meet at Noon in a reserved room of the cafeteria (the NACA Room). Following lunch, students will get on a bus and tour several more facilities while educators will continue discussions on education and future plans for next year's Epic Challenge Program and our vision for the future of learning and education.

NASA ICED Epic Challenge Educator Workshop & Student Exhibition  
NASA Langley Research Center  
March 23<sup>rd</sup>, 2017

Agenda

- 8:00 Welcome and Introduction (Camarda)
- 8:15 Brief Discussion of Innovative Conceptual Engineering Design (ICED) Methodology and the Epic Challenge Program (Camarda)
- 8:30 ICED Epic Challenge Program Finland (Heikki Immonen)  
8:45 Two Teams present
- 9:15 ICED Epic Challenge Program USA  
9:15 Northbridge HS (MA) – 3 Teams Present  
9:45 - 10:00 Break  
10:00 Bergen Academy HS (NY) – Student Presentations  
10:30 Moorestown HS (NJ) – 4 Teams Present  
11:30 Virginia Tech (VA) – One Team Presents
- Noon Lunch NASA Cafeteria (Reserved Room)
- 1:15 – 4:00 Begin Student Tour of Facilities (Walk to close facilities (B 1148 & 1293)
- 1:15 – 4:00 Educator Workshop to discuss curriculum development, pedagogies (Problem-based learning, phenomenon-based learning, etc.)

Thank you in advance for your consideration and we hope to see you either onsite at NASA LaRC or virtually on March 23<sup>rd</sup>, 2017.

Dr. Charles Camarda  
Senior Advisor for engineering Development  
NASA's Langley Research Center  
Astronaut STS-114





Catherine Stickney &lt;cstickney@nps.org&gt;

## Fwd: ICED EPIC Challenge 2017

1 message

James Gorman &lt;jgorman@nps.org&gt;

Thu, Mar 9, 2017 at 8:13 AM

To: Amy Allen-Magnan &lt;amckinstry@nps.org&gt;, William Bishop &lt;wbishop@nps.org&gt;, Catherine Stickney &lt;cstickney@nps.org&gt;

Cc: Patrick Rossi &lt;prossi@nps.org&gt;

Hello all,

The official invite for NASA ICED just arrived from NASA with the details! Finally. See the attachment for all the details. I will get the required student security clearance information to them last period today when I have NASA ICED.

Thank you,

Jim

----- Forwarded message -----

From: **Coleman, Tamika Charvette. (LARC-A5)[LAMPS]** <tamika.coleman@nasa.gov>

Date: Thu, Mar 9, 2017 at 7:58 AM

Subject: ICED EPIC Challenge 2017

To: Ana Gebejes <ana.gebejes@uef.fi>, Andrea Sheridan <andshe@bergen.org>, Andy Jackson <ajackson@harrisonburg.k12.va.us>, Aneesh Chopra <aneesh@hunchanalytics.com>, Anne Peterson <anne.peterson@doe.virginia.gov>, "Bilen, Sven G. (GRC-LCIO)[PENNSYLVANIA STATE UNIVERSITY]" <sbilen@engr.psu.edu>, "Bill \"T-Ball\" Hayden (RADM - USN-Ret.)" <executivedirector@starbasevictory.org>, Bob Ash <rash@odu.edu>, Bud Peterson <bud.peterson@gatech.edu>, "Rhoades, Carrie M. (LARC-D210)" <carrie.m.rhoades@nasa.gov>, Cindy Becker <abcbecker2001@yahoo.com>, Colin Britcher <colin.britcher@nlanet.org>, Damodar Ambur <d\_ambur@yahoo.com>, David Dowling <dolling@gwu.edu>, David Farina <farinada@mtps.com>, "denmon@bergen.org" <denmon@bergen.org>, don williams <dawilliams@hampton.k12.va.us>, Ellen Sallow <E.Sallow@wclschools.org>, Eric Paul <eripau@bergen.org>, Frank Cicio <frank@jq4.com>, Heikki Immonen <heikki.immonen@karelia.fi>, Huseyin Sarper <hsarper@odu.edu>, Ian Cawthray <icawthra@odu.edu>, Jack Matson <jvm4@psu.edu>, James Gorman <jgorman@nps.org>, Janne Hietala <janne.hietala@arcusys.fi>, Jeannette Yen <jeannette.yen@biology.gatech.edu>, Jeff Prillaman <jprillaman@k12albemarle.org>, Jennifer Schmidt <schmidtj@holliston.k12.ma.us>, Jim Batterson <jimbatterson@live.com>, Joe Borowiec <borowiec@nyu.edu>, Joyce Corriere <jcorriere@odu.edu>, Julia Cothron <cothron9293@comcast.net>, Katepalli Sreenivasan <krs3@nyu.edu>, Kevin Nelhuebel <kevin.Nelhuebel@nn.k12.va.us>, Kevin Shinpaugh <kashin@vt.edu>, Larry Kuznetz <n2mars@aol.com>, Laura Nelson <laura.nelson@pps.k12.va.us>, Linda Vahalla <lvahalla@odu.edu>, Lolita Hall <lb.hall@doe.virginia.gov>, Lynn Basham <lynn.basham@doe.virginia.gov>, Mark Clemente <mark.clemente@vbschools.com>, Mark Tronike <martro@bergen.org>, Mary Patterson <mary.patterson@nhrec.org>, Mary Sandy <msandy@odu.edu>, Michael Plesniak <plesniak@gwu.edu>, Michael Richey <michaelrichey@gmail.com>, Mike Liva <micliv@bergen.org>, Moustafa Moustafa <mmoustaf@odu.edu>, "Miller, Nathanael A. (LARC-D202)" <nathanael.a.miller@nasa.gov>, Oktay Baysal <obaysal@odu.edu>, Pam Moran <moran@k12albemarle.org>, Pat Konopnicki <patrick.konopnicki@vbschools.com>, Patricia Lynn Moore Stewart <pstewart@nps.k12.va.us>, Paul Nichols <pnichols@mcpsweb.org>, Peter Morales <peter.morales@nyu.edu>, petros katsioloudis <pkatsiol@odu.edu>, Phil Reed <preed@odu.edu>, Rebecca Gates <rgates@nuocps.net>, Richard Wilczewski <rwilczewski@mtps.com>, Robbie Munsey <rmunsey@k12albemarle.org>, Rudo Kashiri <rkashiri@odu.edu>, Shelley Spiers <shelley.spears@nlanet.org>, Sridhar Kota <kota@umich.edu>, Stephen Walk <steven.walk@nhgs.tec.va.us>, Steve Constantino <steve.constantino@doe.virginia.gov>, Steve Staples <steve.staples@doe.virginia.gov>, Steve Wagner <steven\_wagner@ccpsnet.net>, "Throckmorton, David (LARC-D3) [NATIONAL INSTITUTE OF AEROSPACE]" <david.throckmorton@nlanet.org>, Tim Simpson <tw8@psu.edu>, Tina Manglicmot <tina.manglicmot@doe.virginia.gov>, Tracie Kunkel <tkunkel@nps.k12.va.us>, Tyler Hart <jhart@rbc.edu>, Vikki Wismer <vikki.wismer@nhrec.org>, William Hughes <whh11@scasd.org>

Cc: "Camarda, Charles J. (LARC-D2)" <charles.j.camarda@nasa.gov>

All,

Please join us for our second Epic Challenge Educator Workshop and Student Exhibition March 23<sup>rd</sup>, 2017 at NASA's Langley Research Center. This year we will be showcasing students work from Virginia Tech, Northbridge, Moorestown, and Bergen Academy high schools, as well as our university and high-school teams from Finland. We hope to make this a learning opportunity for students and educators with an afternoon of tours of some of the key technologies NASA is working on in aeronautics and space. We would also like to have educator discussions on learning pedagogy, lessons learned with the hopes of brainstorming ideas for scaling the program to reach as many students as possible in Virginia, Massachusetts, NY/NJ, and around the world.

We will have a virtual link via Vidyo for those who cannot attend in person and we will be recording the event for those unable to attend. We also have links to key material about the program and agenda updates.

Please RSVP by March 15<sup>th</sup>, so we can plan accordingly.

Thank you and look forward to connecting with you either face-to-face or virtually. Your feedback is important to us.

*Tamika Coleman*

*ManTech International Corp.*

*Earth System Science Pathfinder Program Office*

*Langley Research Center*

*Mail Stop 145 Bldg 1195A*

*(o) 757-864-4390*

*(c) 757-650-7317*

*(f) 757-864-8435*

*tamika.coleman@nasa.gov*

—  
James J. Gorman  
Science Teacher  
Northbridge High School  
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Follow me on Twitter @MrGorman1

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**ICED Educator Workshop 2017 Announcement-Flyer rev 1.docx**

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