How I Got Here From AU College of Engineering
STEM Movie with college students and young engineers, etc.
A Deeper Purpose,
A Bolder Mission

“To reach for new heights...
and reveal the unknown so that what we do
and learn will benefit all humankind.”
SLS is the first step in the journey to Mars.

Going to Mars will be difficult. SLS provides the power that it takes.
NASA’s Space Launch System

Orion:
Carrying astronauts into deep space

RS-25 Engines:
16 Space Shuttle engines are already in inventory

Core Stage:
Newly developed for SLS, the Core Stage towers more than 200 feet tall

Interim Cryogenic Propulsion Stage:
Based on the Delta IV Heavy upper stage; the power to leave Earth

Solid Rocket Boosters:
Built on Space Shuttle hardware; more powerful for a new era of exploration
70 Metric Ton Expanded View
NASA’s Space Launch System

Launching Soon.

Building Today.
SLS Nationwide Team

- Engaging the U.S. Aerospace Industry
- Strengthening Sectors such as Manufacturing
- Advancing Technology and Innovation

224 Subcontracts in 30 States

www.nasa.gov/sls
## SLS Development Schedule

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<th>Year</th>
<th>Concept Studies</th>
<th>Concept &amp; Technology Development</th>
<th>Preliminary Design &amp; Technology Completion</th>
<th>Final Design &amp; Fabrication</th>
<th>System Assembly, Integration &amp; Test, Launch &amp; Checkout</th>
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<td>2011</td>
<td>MCR</td>
<td>SRR/SDR</td>
<td>KDP-C</td>
<td>CDR</td>
<td>PLAR, FRR, Launch, First Flight</td>
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- **Formulation**
  - SLS Design Chosen
  - Engines Delivered to Inventory
  - Booster Development Test
  - Wind Tunnel Testing
  - Manufacturing Tooling Installed
  - Production of First New Flight Hardware
  - Orion Flight Test
  - Booster Test-Firings
  - Core Stage Assembly
  - Booster Assembly at KSC
  - Vehicle Stacking at KSC

- **Implementation**
  - Core Stage Structure Testing
  - Main Engine Test-Firing
  - Core Stage Test-Firing
  - Launch

### Key Dates
- **2012**: Orion Flight Test
- **2013**: ICPS Production Begins
- **2014**: Main Engine Test-Firing
- **2015**: Core Stage Test-Firing
- **2016**: Core Stage Structure Testing
- **2017**: First Flight

### Abbreviations
- MCR: Mission Concept Review
- CDR: Critical Design Review
- SRR: System Requirements Review
- SIR: System Integration Review
- SDR: System Definition Review
- FRR: Flight Readiness Review
- PDR: Preliminary Design Review
- PLAR: Post-Launch Asses. Review
‘Stack it. I’m ready.’
–Tony Antonelli
Exceeding Expectations

Engines
Tested selective laser melted part on J-2X at Stennis Space Center (March 2013)

Boosters
Conducted Thrust Vector Flight Control Test at ATK in Promontory, UT (Jan 2013)

Core Stage
Transferred Core Stage test panels to Michoud Assembly Facility (MAF) in New Orleans (Spring 2013)

First Core Stage barrel section welded at MAF (July 2013)

Spacecraft & Payload Integration
Conducted fit-check of the Multi-Purpose Crew Vehicle Stage Adapter at the Marshall Space Flight Center for 2014 Exploration Flight Test (June 2013)

Advanced Development
Conducted F-1 engine hot-fire testing at Marshall (Jan 2013)

Systems Engineering & Integration
Tested buffet model in Langley Research Center’s Transonic Dynamics Wind Tunnel (Jan 2013)

On Course for First Flight in 2017
How Your Major/Career Connects

Auburn University College of Engineering Degrees

- Aerospace Engineering
- Biosystems Engineering
- Chemical Engineering
- Civil Engineering
- Environmental Science
- Computer Science
- Software Engineering
- Wireless Engineering
- Electrical Engineering
- Industrial and Systems Engineering
- Mechanical Engineering
- Materials Engineering (Department of Mechanical Engineering)
- Polymer and Fiber Engineering

Chris Crumbly
Tim Owen
Jan Davis
Todd May (SLS Program Manager)
Dave Whitten
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https://intern.nasa.gov/index.html
“Man cannot discover new oceans unless he has the courage to lose sight of the shore.”

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