Agenda

- Changing Work Environment
- Engineering Career Options
- Curriculum That Makes a Difference
- Closing Remarks
Changing Work Environment - Clinton/Gore Priorities for Space

- Improve the Economy
  - Increase Priority of Aeronautics
  - Cutting Edge Technology and Transfer

- NASA and the Environment
  - EOS
  - Focused Environmental Missions

- NASA and Education
  - Math and Science Programs
  - Expand Outreach

- Encourage Planetary Exploration

- Maintain Shuttle & Continue Space Station
Changing Work Environment - Goldin’s Agenda

- NASA’s Budget is Big Enough to Accomplish Much More
- “If He Had His Way” - Change All Big Programs
- Planetary Should be Launched Every Year
- NASA Must Change Its Culture
Changing Work Environment - Goldin’s Strategy

- NASA must foster technological development that leads to industrial competitiveness
  - Development cycles must be short so technology is still new
  - Programs must be smaller so risk-taking can be done
  - Programs must be cheaper so the public and Congress will see more results
  - Industry must be a partner so technology is used elsewhere
Changing Work Environment

- Develop lower-cost programs
- Incorporate new technologies
- Seek greater linkages with industry
- Fulfill our societal obligations
- Right sizing and be more focused
- Larger role in outreach programs
Engineering Career Options

- Sales and Management
- Product Design
- Advanced Development
- Technology and R&D
- General Engineering
  - Hands on and Handbook Applications
  - Applied Analytical and Hardware skills
  - Fundamentals and Innovation

Different training is required for different career paths.
Curriculum That Makes a Difference

- Engineering Fundamentals
  - more physics (dynamics, optics . ..)
  - computer science fundamentals
  - numerical analysis & linear algebra
  - laboratory (e.g., linear systems, microprocessor, controls)

- Advanced Speaking and Writing Skills

- Practical Relevance
  - coop and summer engineering programs
  - seminar with industry speakers
  - engineering economics
  - group projects to solve real world problems:
    » judgments (tolerance to uncertainties)
    » tradeoffs
    » teamwork
Curriculum That Makes a Difference

- Multidiscipline training
  - more math, computer science and physics
  - multidiscipline modeling and simulation
Closing Remarks

- Emphasize depth & breadth on basic trainings
- Nurture competitiveness and teamwork
- Nurture judgments and tolerance to uncertainties
- Ensure economic and social literacy