



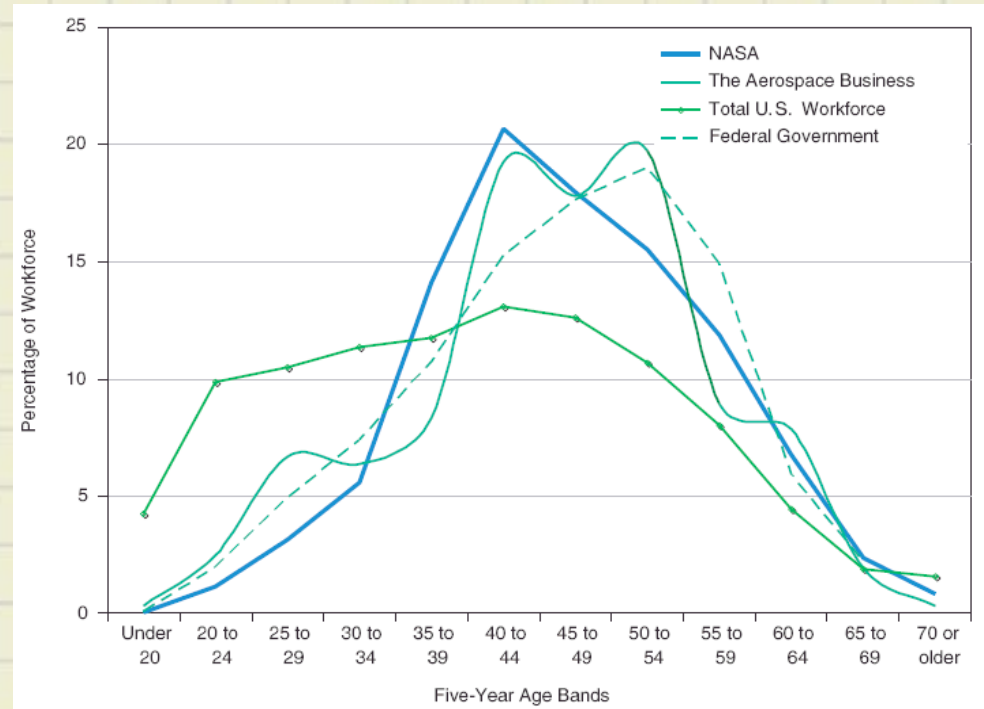
# **Integrated Product Team Program Overview**

**Bringing the Real World into the Classroom**



# Aerospace & Defense Workforce Issues

- Aging workforce
  - Average age is 45.8 years
  - During Apollo – 26 years
- 26% of all aerospace workers able to retire
- 60,678 positions are available through 2012
- NRC report outlines need for increased engineering design education in K-12

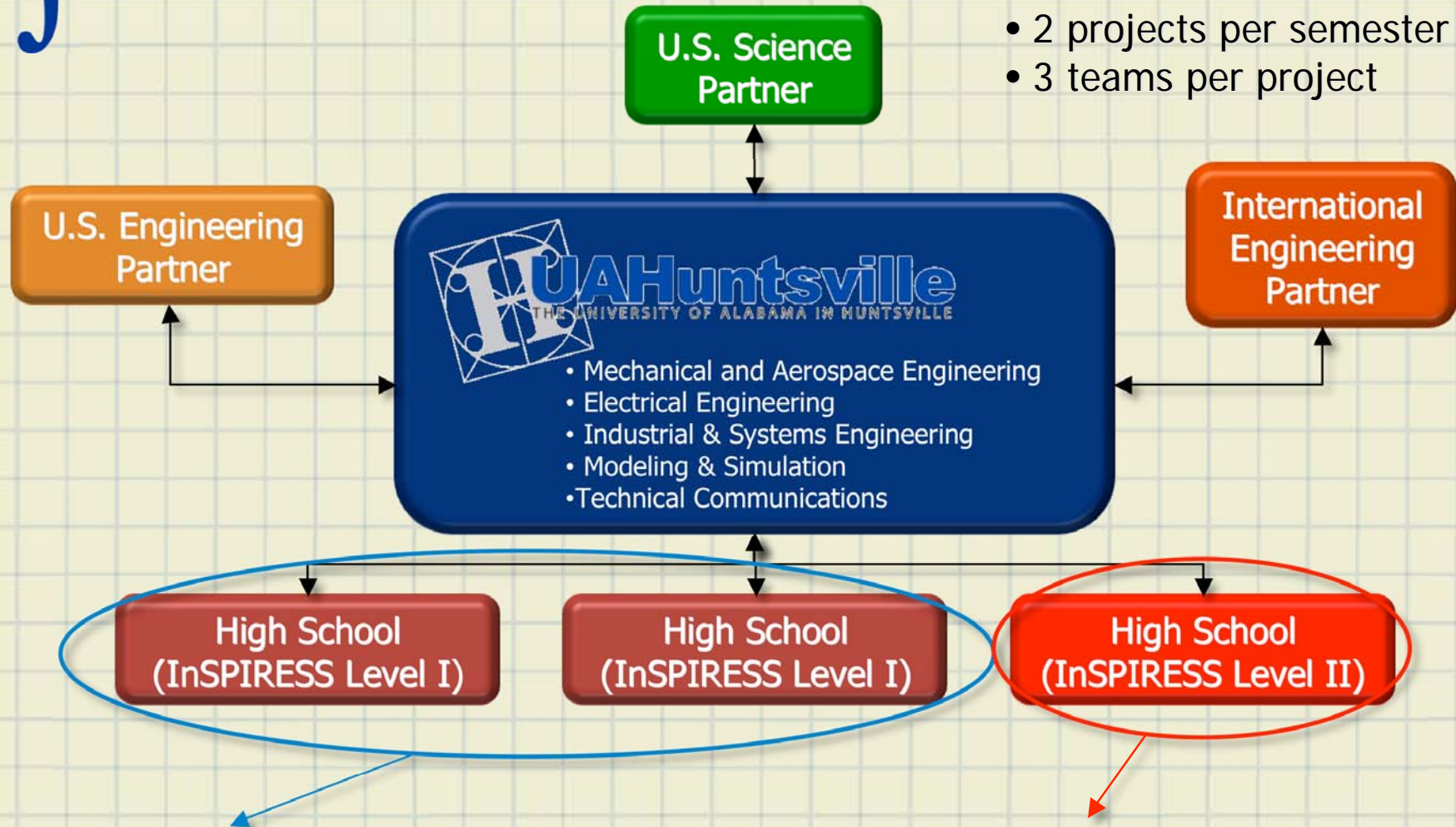


***The Integrated Product Team (IPT) Program was developed to address these issues***



# IPT Model

- 2 projects per semester
- 3 teams per project



Two high schools compete to be payload on Sr. Design Experience spacecraft

Level 2 project is to design an element of the mission (students selected from "best" of Level 1 project)



## IPT/ Space Missions Program Objectives

- Create world class scientists and engineers capable of transitioning seamlessly into the professional world
  - Application of engineering discipline
  - Communicate effectively
  - Think in a systems context
  - Experience with real-world design engineering
  - Function in a team environment
- Generate interest in Science, Technology, Engineering, and Mathematics (STEM) careers and retain those students
  - Create a STEM pipeline



# Science Objectives

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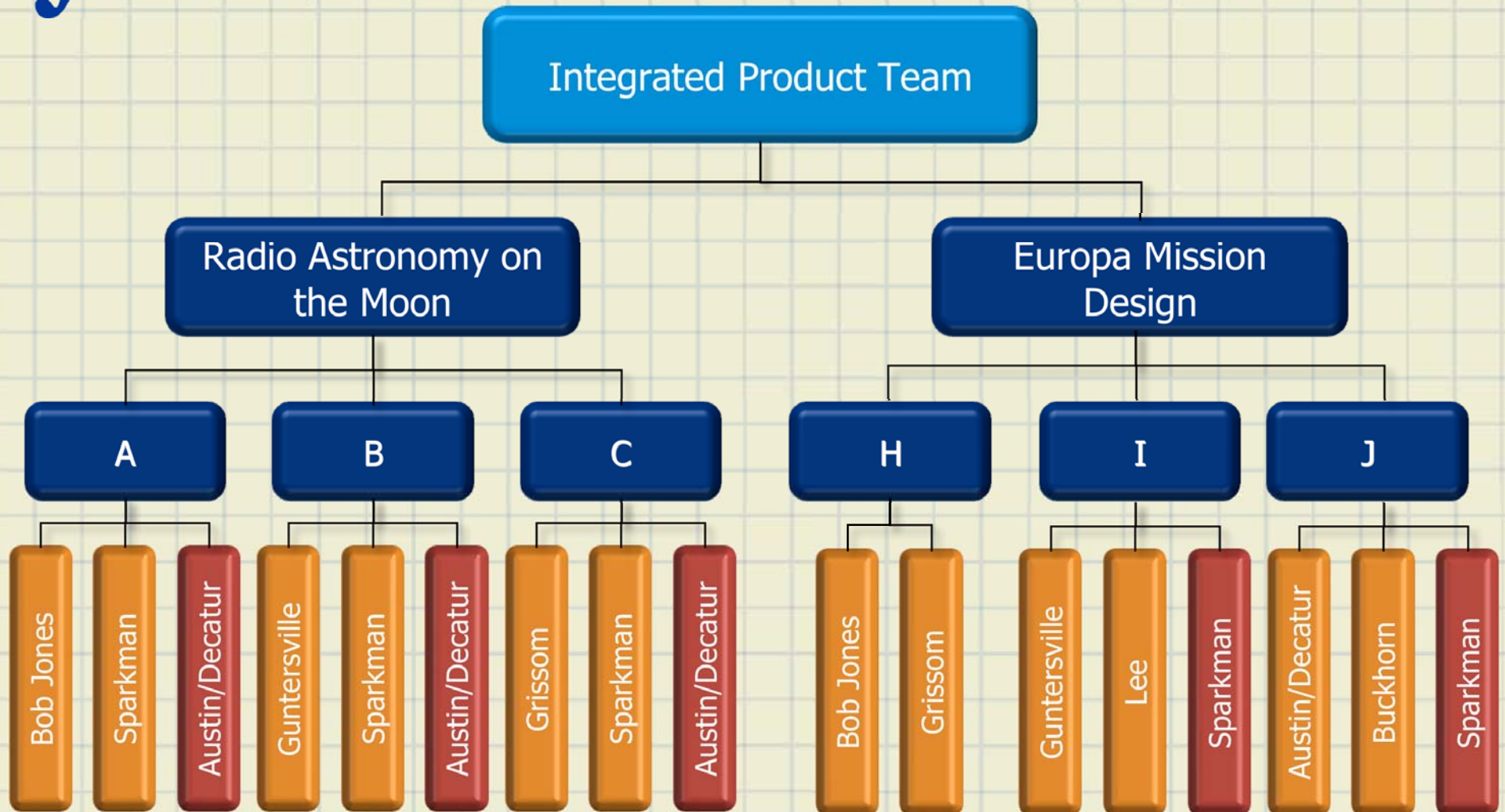
- Two target undergraduate student audiences:
  - Lower division: course maintains student science interests beyond general education.
  - Upper division: course counts towards major; provides leadership experience.

## Course Objectives:

- To provide students with an opportunity to practice techniques learned in science classes.
- To develop interdisciplinary communication and interaction between scientists and engineers.
- To develop interdisciplinary interaction between scientists (currently astronomers, geologists, physicists, marine biologists, computer scientists).
- To immerse students in the grant writing process.

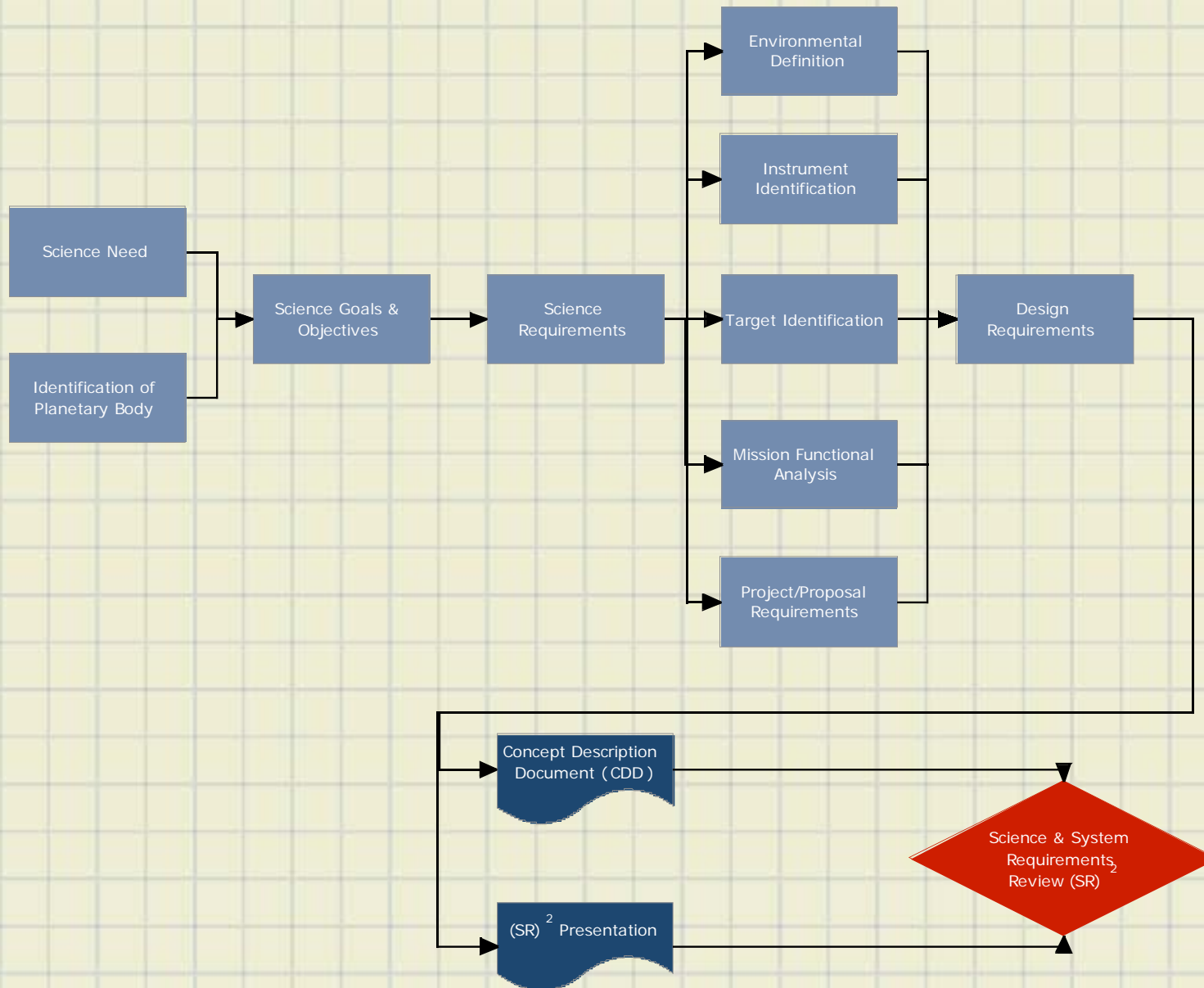


# 2010-2011 Program



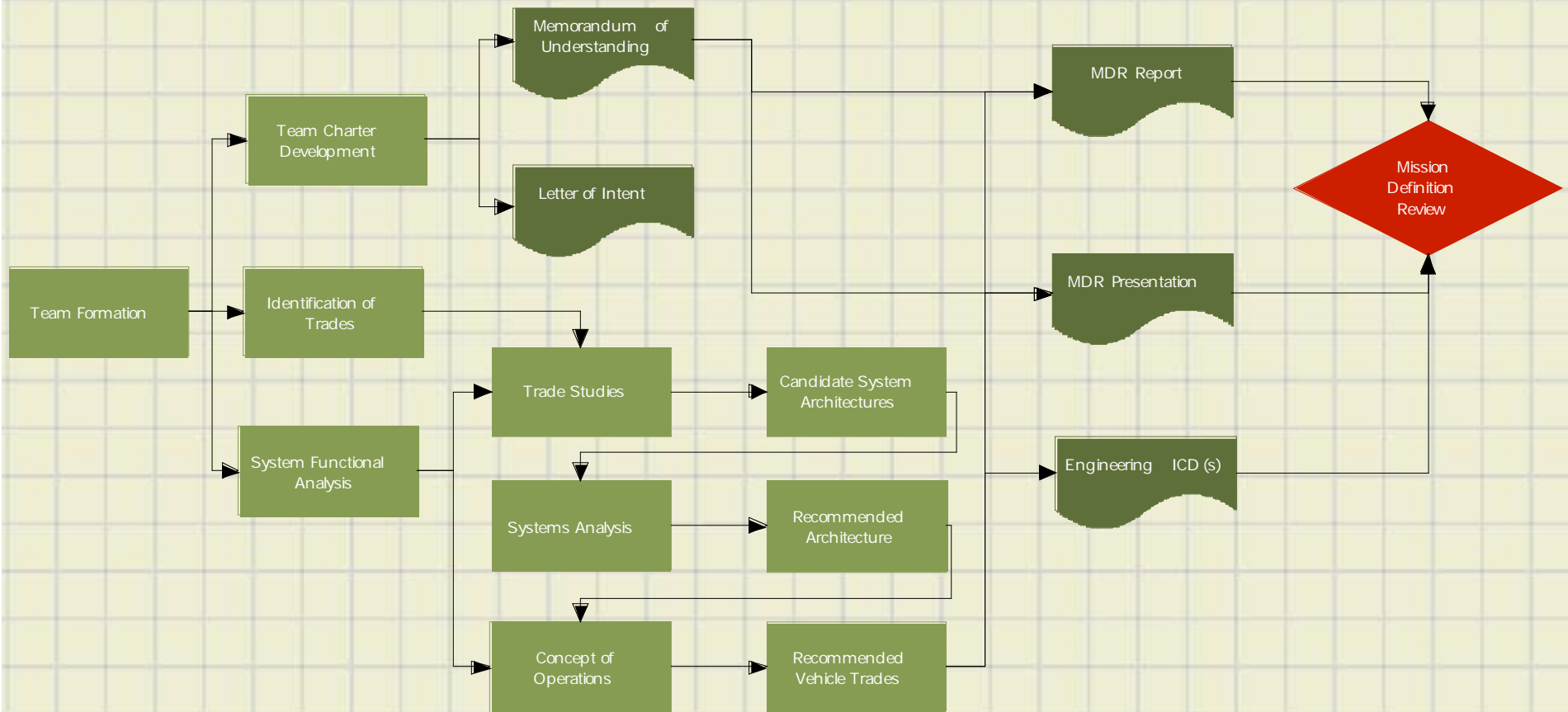


# Phase 1 - Requirements Development





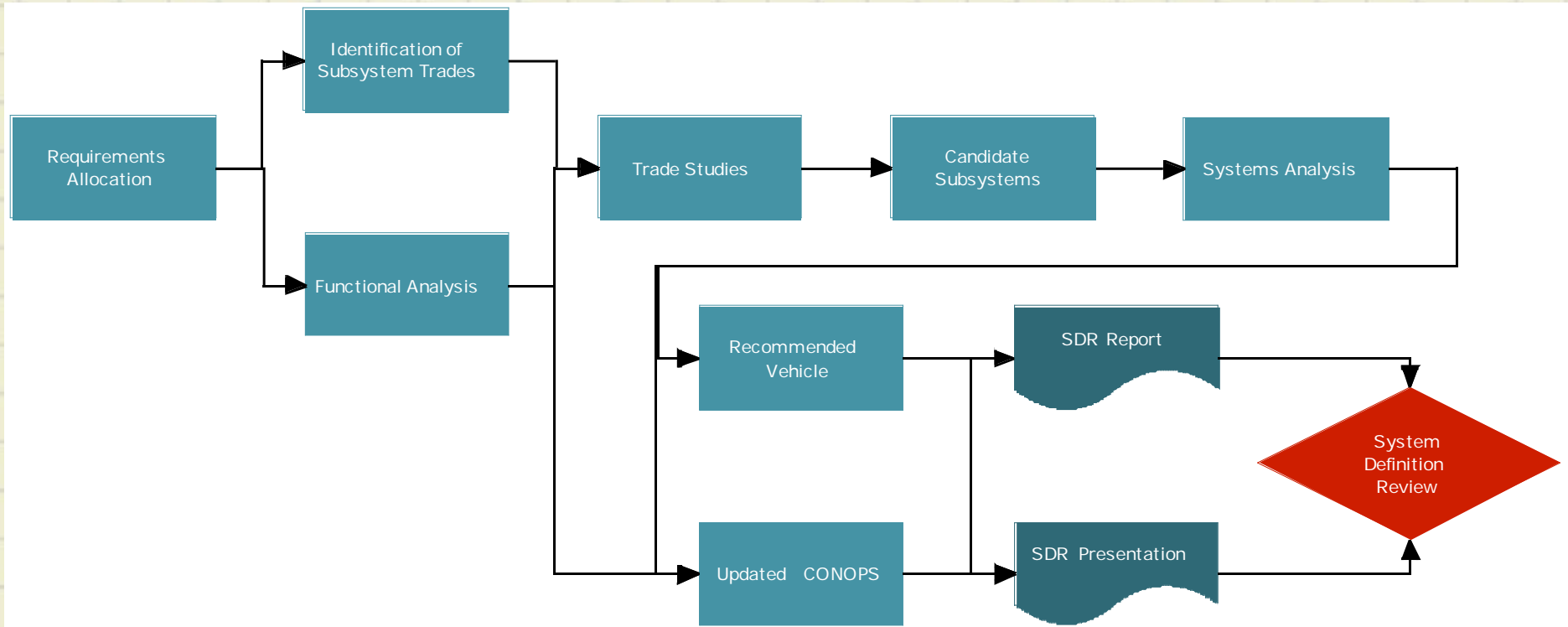
# Phase 2 – Team Formation & Architecture Definition





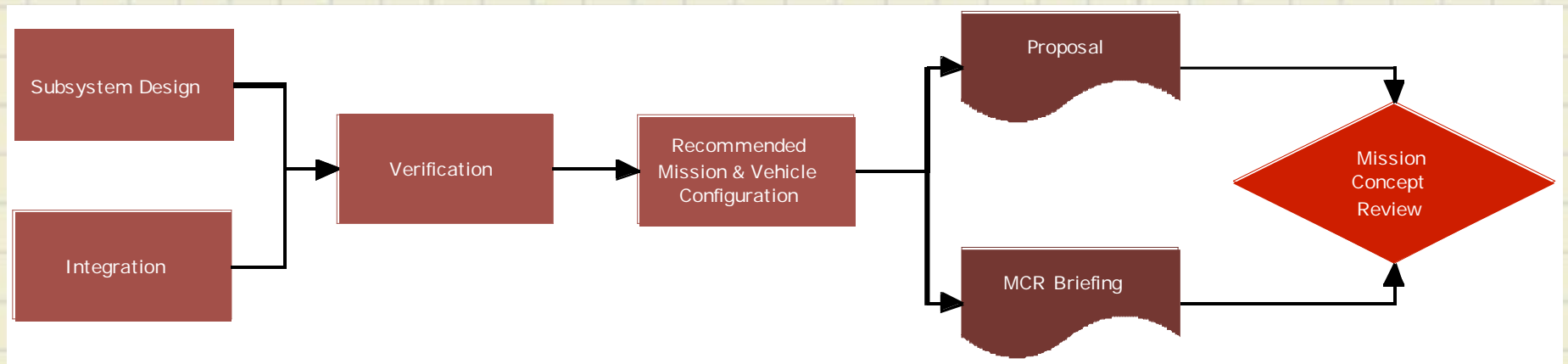


# Phase 3 – System Definition





# Phase 4 – System Design





**And now ...**

**From the student perspective**



# Questions?

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## Engineering

- **Phillip A. Farrington, Ph.D.**
  - (256) 824-6568
  - [phillip.farrington@uah.edu](mailto:phillip.farrington@uah.edu)
  
- **Michael P.J. Benfield, Ph.D.**
  - (256) 824-2976
  - [pj.benfield@uah.edu](mailto:pj.benfield@uah.edu)
  
- **Matthew W. Turner, Ph.D.**
  - (256) 824-4629
  - [matt.turner@uah.edu](mailto:matt.turner@uah.edu)

## Science

- **Jon Hakkila, Ph.D.**
  - (843) 953-6387
  - [hakkilaj@cofc.edu](mailto:hakkilaj@cofc.edu)
  
- **Cassandra Runyon, Ph.D.**
  - (843) 953-8279
  - [runyonc@cofc.edu](mailto:runyonc@cofc.edu)