

# CS/EE/ME 75(b)

**Instructor:** Joel W. Burdick

**T.A.:** Daniel Naftalovich (nafty@caltech.edu)?

**Course Location/Time:** 135 Gates-Thomas, TBD

- 1.5 hour/week class time
- 1 hour/week project meetings for each team

**Course Web Site:**

*[http://robotics.caltech.edu/wiki/index.php/CS\\_EE\\_ME\\_75\\_2019-20](http://robotics.caltech.edu/wiki/index.php/CS_EE_ME_75_2019-20)*

**Units:** See course web site for details

- 2<sup>nd</sup> quarter: 6, 9, or 12 units:

# CS/EE/ME 75 Goals, Objectives, Schedule

## Winter Goals:

- *Everybody* must now be working on a system
- Better organize teams and their goals in order to prototype systems
  - Drive-o-copter team needs to be divided into smaller groups
    - Better track individual contributions
    - Better communication/organization
    - Better output/efficiency
- Focus on finishing electromechanical design innovations/modifications
- Start (and in some cases finish) integrating onboard autonomy.

# CS/EE/ME 75 Goals, Objectives, Schedule

## **Objectives: general**

- Prepare for and complete Critical Design Review (CDR)
- Finish a full functioning prototype
  - Validate or critique the baseline design;
  - Check on specifications/choices
  - Does it meet original objectives?

## **Objectives: specific**

- **RC Car:**
  - Prep Balto for Urban Circuit:
  - Togo:
    - Build New Superstructure
    - Wheel Odometry
    - Adapt autonomy system

# CS/EE/ME 75 Goals, Objectives, Schedule

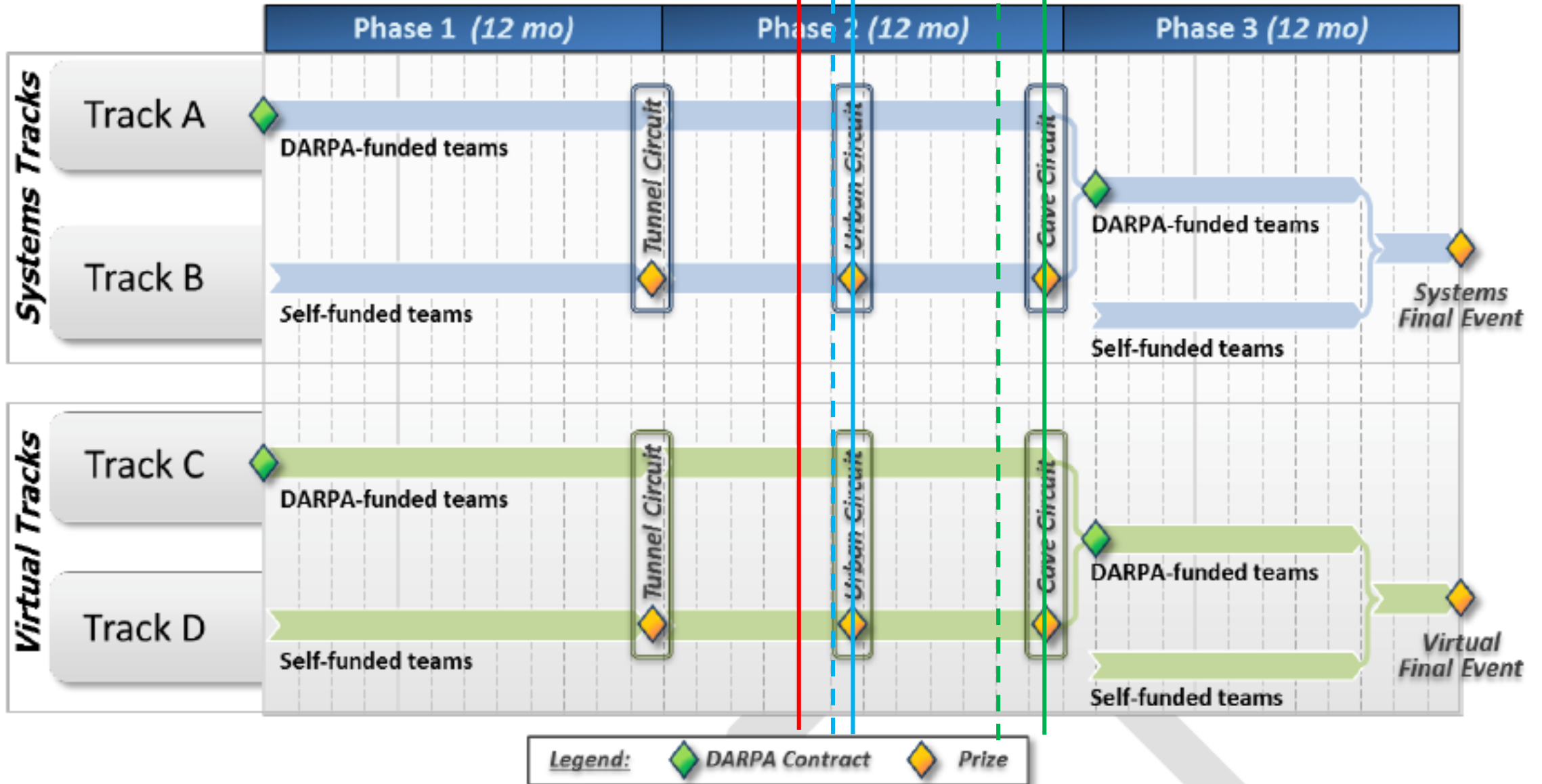
## Objectives: specific

- **UWB/Localization**
  - What can you do for Urban Circuit?
    - Additions to JPL baseline?
    - Stair configuration optimization
    - Integration with LAMP
  - Full Autonomy for Cave Circuit
    - Automated triangulation setup
    - Robust to marker movement
- **Drive-O-Copter**
  - *Finish* a mechanical prototype!
  - *Build* an avionics system. Benchtop is a good start
  - Tune the combined system to get stable flight
  - Automate:
    - Take-off
    - Landing

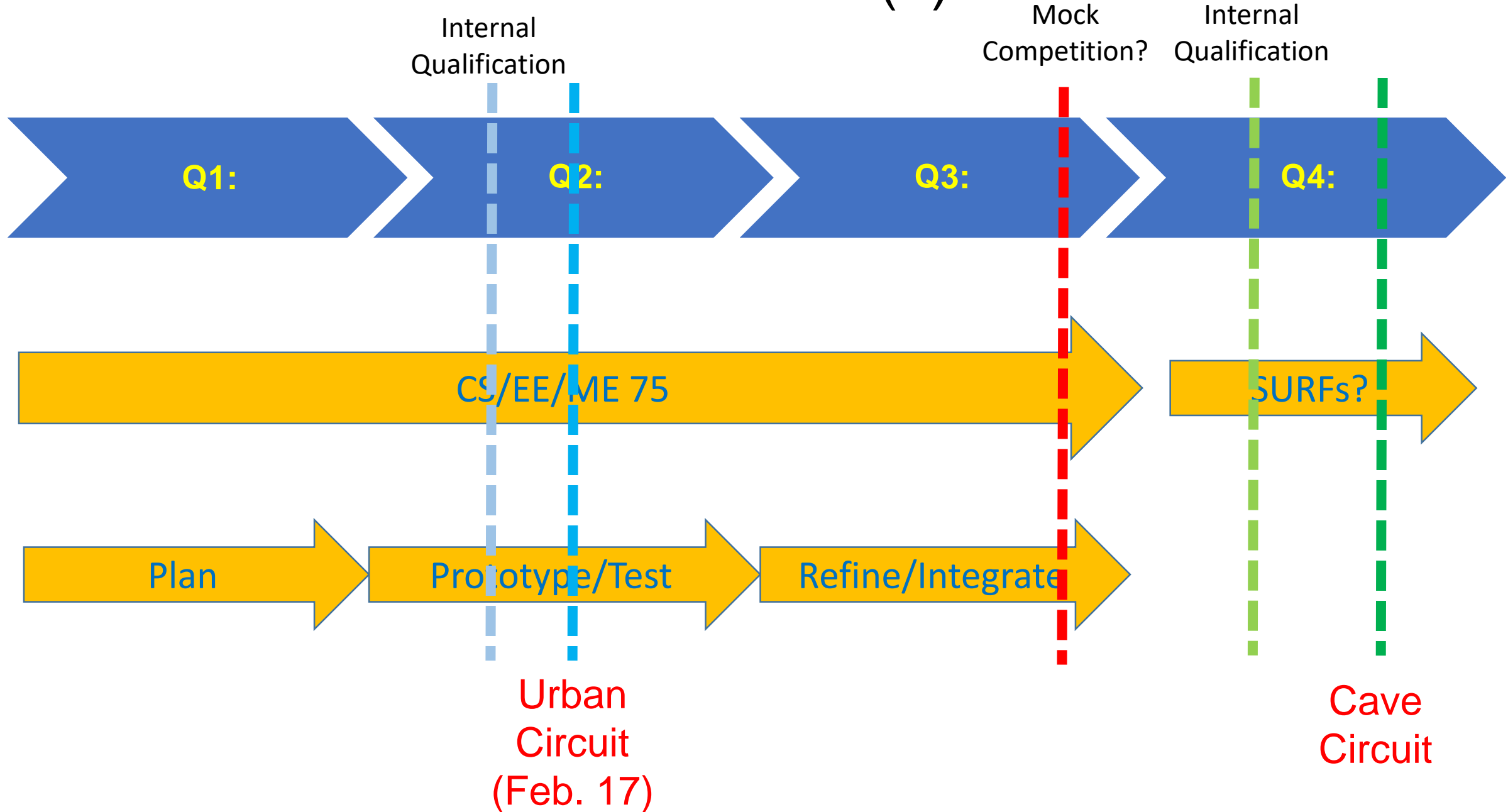
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Cave Circuit (mid-Aug.)

# Timeline



# CS/EE/ME 75(b)



# CS/EE/ME 75(b): Format

- Next “Structured Artifact” Goal: Critical Design Review (3 weeks)
- Weekly Structure this quarter:
  - Weekly team presentations:
    - 10-15 minutes, 5-10 slides
    - Previous weeks accomplishments
    - Problems encountered
    - Next week’s goals (see your milestone charts)
- Assignment:
  - Review/Update your milestone charts
  - Choose one aspect of your design for development this week
    - Bring this aspect to a level of completion
    - Present it next week.
  - Decide on your team’s Present prototype in 2 weeks
  - Does your team need a new meeting time?