Agenda

• Discussion of Projects and Teams
• Breakout Session on Choice of Projects
• Discussion of Syllabus and Guest lecturers including Lunch, also
• Conferences
• Syllabus
• Lecture on Teams and Research Guidance
For Tuesday, October 3

- Have Team
- Have Term project
- Why did you choose this project?
- Have a few alternatives
Homework for Next Thursday

• Give name for Team
• Roles and Responsibilities
• Means of communication
• Give Ground Rules for your team
• Affirm topic choice (and back-up?)
• A or B
• Begin secondary research to scope project
• What are some of the key questions you would like to answer

• If the topic is not interesting switch!
OK What do we have?
Break-out Sessions by Teams

• Verify Team- Others welcome?
• Those not on a Team can talk to those who need more members
• If your Team is formed, give priority order of Projects
Syllabus Discussion
Breaking News

• Tech Coast Angels will be at Caltech on Friday, November 3

  – What’s in it for you?
Grading

• P/F or Grade both permissible
Discussion on Teams

• What makes a good Team?
• What makes a great Team?
Some suggested Team guidelines

After you Decide on your Team and Project

- Choose a leader
  - The leader can be rotated
- Choose roles
  - who does what on team
- Choose means of communication
  - e.g. e-mail, facebook, phone, web-site, face-to-face
  - frequency of meetings (when and where)
- Decide on ground rules
  - What to do when a team member is not pulling weight?
  - What to do if the goals are seen as not reachable?
  - What to do if you can’t agree
Guidelines (cont.)

For meetings
  • Show up
Guidelines (cont.)

For meetings
• Show up on time

Don't be LATE
Guidelines (cont.)

• Assign and rotate roles

  Time keeper

  Scribe

  Leader
Guidelines (cont.)

For meetings

- Leader has an agenda
Guidelines (cont.)

For meetings

- Scribe Captures and Circulates Action Item List

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<thead>
<tr>
<th>Who</th>
<th>What</th>
<th>When due</th>
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<tr>
<td>Action 1</td>
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<td>Action 3</td>
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Guidelines (cont.)

For meetings

• Review Action items at the beginning of each meeting

• Leader periodically takes process break, asking
  • Are we sticking to an agenda or are we wandering off the subject?
  • Do we have an agenda?
  • Is everybody contributing or are some dominating?
  • Are you reaching your expectations for the meeting?

• Write down agreements and disagreements

• Write down actions and plans for resolution
Guidelines (cont.)

• Good to try and invent new ways of interacting

- the object is Team Effectiveness
Test of team effectiveness

• After third and fifth week
  – Ask yourselves
    • Is your Team functioning well?
    • If not do you have a plan to improve?
    • How well is this plan working?
    • Do you require any intervention?
What are the characteristics of a good Caltech team?

- Everybody is involved
- Not afraid with own ideas
- Established goals and expectations
- Diverse skill sets
- Don’t take criticism personally
- Learn to listen
- Efficiency
- Good comm coordination
Some Attributes of Successful Teams

- Leadership
- Commitment
- Integrity
- Common purpose
- Behaviors
  - respect
  - pitch in
  - delegate
Good Caltech Team

• Communication
• Even distribution of Labor
• Different perspectives
  – Why teams usually give better results than individuals
Good Team

• Has a mediator/leader
• Efficient
• Decisiveness
• Conflict of personalities minimized
• Agenda
• Data driven
• Complementary skills
• Willingness to compromise
• Common goals
• Respect
• On time showing up
Lecture 4
Project Research
Research Process

1. Decide on project/team
2. Allocation of Responsibility
3. Create hypotheses
4. Secondary Research
5. Primary Research
6. Analysis
7. Write-up
Examples of Hypotheses to test

• Take an optimistic projection and consider it as a hypothesis, “such and such will be pervasive in 20’..”

• Take a key enabler and assume that it is valid: “Social networking will drive human interactions so that people will not have to meet face to face.” or “Asymmetric warfare will continue to dominate defense thinking for the next 20 years”

• Take a key issue and assume it will grow and force a decision: “Catastrophe recovery dominates power distribution planning” or “Traffic grows so bad that a rethinking of transportation becomes necessary”
Product Development Process

Phase 1
- Market Needs
- Technology Availability
- People skills
- Can it be made?
*Decision* to go to next step

Phase 2
- Team formation
- Systems design
- Systems Partition
*Decision* to go to the next step

Phase 3
- Detailed design
  - Software
  - Hardware

Phase 4
- Systems integration and test

Phase 5
- Transfer to manufacturing and support

Phase 6
- Cost reduction and Product improvement
Hypotheses

• Initial Examples
  – Eng Development is well focused on primary product
    • Clear answers
    • Too many projects
  – Tunnel vision
  – Awareness of environment
  – There is a well-understood process for introducing new products
  – Company has competitive advantage in the technology they are pursuing
  – Work is scheduled so that engineers have time to finish product/project (tight but realistic)
    • History of accomplishment
  – Marketing and manufacturing tied into Development process

• After Hearing CEO Consider modification
Begin Secondary Research

• After you have Problem
• Begin early to line up interviewing subjects for Primary Research
HW for Next Tuesday October 10th

• Show ~ 3 Hypotheses
• Show results of initial Secondary Research
  – Best Sources
  – What did you find out that was surprising?
• List of Potential interviewees- Why would they be valuable to talk to?