CS/EE/ME 75 – Solar Decathlon
27 September 2010

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Annie Liu  Prakhar Mehrotra  Dan Turner-Evans

Engineering and Applied Science
California Institute of Technology
Meeting Goals and Agenda

Goals

• Provide an overview of the 2011 Solar Decathlon and baseline design
• Review the course structure for CS/EE/ME 75 and describe how to participate

Agenda

3:00   Goals, Agenda, Notetaker
3:05   2011 Solar Decathlon review (Reed Finlay, SCI-Arc)
3:20   Engineering team baseline design status (Fei Yang, Caltech)
3:35   CS/EE/ME 75 course overview and organization
3:50   Q&A
3:55   Adjourn

Notetaker: ______________________

• Record notes and action items from meeting; post on wiki
Solar Decathlon Overview (Reed)

SCI-Arc/Caltech Solar Decathlon Team

Overview Presentation
August 26th, 2010
Baseline Design (Fei)
# CS/EE/ME 75 Organization

## Integrated Product Team (IPT)
- **Project manager**: TBD (ug; 9u)
- **Project engineer**: TBD (ug; 9u)

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<tr>
<th>Mechanical Systems</th>
<th>Electrical Systems</th>
<th>Computing Systems</th>
<th>SCI-Arc</th>
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<td>TA: Prakhar Mehrotra</td>
<td>TA: Dan Turner-Evans</td>
<td>TA: Annie Liu</td>
<td>Instr: Jones, Oyler</td>
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<td>Team rep: TBD (ug; 9u)</td>
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<td>• Interior design</td>
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<td>Water systems</td>
<td>Photovoltaics</td>
<td>Security system</td>
<td>• Exterior design</td>
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<td>Building shell</td>
<td>Lighting</td>
<td>Home automation</td>
<td>• Communications</td>
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<td>Appliances</td>
<td>Consumer electronics</td>
<td>Weather modeling</td>
<td>• Documentation</td>
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<td>• Mock up</td>
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### Add’l support teams
- System admin
- Facilities
- Others as needed

### Team assignment guidelines
- All CS/EE/ME 75 students on 1 subsystem team (1-4 per subsys)
- Students w/ 6-9 hrs/week on add’l supporting team (CIT, SCI-Arc)
- IPT role requires 9 hrs/week; rotate assignments each term
**CS/EE/ME 75 Goals, Objectives and Schedule**

**Fall 2010 Goals**
- Build integrated team that can win the 2011 Solar Decathlon
- Complete design development phase; submit design (23 Nov)
- Explore options for providing technology *sizzle* in our design

**Objectives**
- For subsystems with existing baseline designs:
  - Revalidate the baseline design; verify max points possible
  - Agree on specifications and choices with IPT, SCI-Arc
  - Model-based analysis of system performance
  - Documented baseline design → DD phase deliverable
  - Evaluate technology options; perform cost analysis for each
- For subsystems without existing baseline designs:
  - Analyze design options: perf, cost, electric/thermal loads
  - Establish baseline design to achieve max points
  - Documented baseline design → DD phase deliverable
- Develop and maintain system-level cost/energy budgets and verify max points are possible
  - Provide design capable of max points on 95th percentile day
  - Provide design capable of 90% max points on worst case day (over last 20 years)

**Schedule**
- Weeks 1-4: team formation, planning, baseline design analysis
- Week 6-8: design refinement, document’n, design reviews
- Week 9-10: technology options, Q2 planning

**Milestones**
- 13 Oct: subsystem teams know SD rules + baseline status
- 27 Oct: revalidated/ preliminary baseline designs complete
- 10 Nov: rigorous design analysis and documentation complete
- 23 Nov: design development document due
- 10 Dec: final reports due
CS/EE/ME 75 Course Administration

Class homepage: http://www.cds.caltech.edu/~murray/wiki/CS-EE-ME_75

Course meetings (first term)
- Project meetings: time and location TBD (1 hr, weekly)
- Team meetings: time and location TBD (1.5 hr, weekly)

Units (default = 3; file signed add card by end of week 3 to change)
- 3 units: participate in one design team; meetings + help with presentation
- 6 units: additional design work and/or participation in second (non-design) team
- 9 units: even more design work; required for all team rep roles

Grading
- 20% Homework (weeks 1-4 only)
- 20% Subsystem presentations (team effort)
- 40% Documentation of work for the term (individual writeup)
- 20% Participation (attendance, discussion, contributions)

Collaboration policy: full collaboration required. (Write up your own final report)

Signup sheets due Wed (29 Sep) at noon in box outside 109 Steele