



Proposal to Renovate Soda Hall Instructional Labs  
Spring 2013

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**Summary**

The Department of Electrical Engineering and Computer Sciences at UC Berkeley has been consistently ranked in the top three nationwide and worldwide by various organizations that rank academic programs. Computer Sciences classes have surged in popularity, increasing by 30% in the last 5 years.

The department provides dedicated lab space and computing resources for these classes. We plan to renovate these facilities and adapt them to new learning models that include student-owned laptops, virtual and cloud computing, group collaboration and distance learning. We have recently surveyed our instructors and students and have incorporated their observations and recommendations. Students are increasingly using laptops and virtual computer images, notably in the Upper Division courses. They have requested more collaborative group spaces. Instructors of Lower Division courses have requested larger computer labs to accommodate increased class sizes.

For the Lower Division classes, we would like to renovate 4 adjacent labs (271, 273, 275, 277 Soda) with 80% pre-configured seating arrangements, 20% laptop work areas, and new projectors. We could remove or relocate some walls to create 1 or 2 labs with 50 or more seats.



For the Upper Division classes, we would renovate 2 labs (283/287, 349 Soda) with 30% pre-configured seating, 70% seating for collaborative laptop use, and group work areas with large shared displays. We would merge 283 Soda with the west half of 287 Soda and remove the small conference rooms to create a single lab of 840 sq feet.





**Criteria**

Lower Division labs (271, 273, 275, 277 Soda):

1. Replace 10-year old computers used by CS Lower Div classes
2. Accommodate increasing enrollments in CS Lower Div classes
3. Expand labs to seat 50 students at once.
4. Run 30-50 concurrent sessions of streaming videos, VMs, Eclipse, Firefox, or etc in each lab.
5. Provide stable, consistent user interface for users on desktop, laptop and remote logins.
6. Make Linux the primary environment for all LD classes.
7. Provide clean, safe and comfortable lab spaces [cable control, chairs, lighting]

Upper Division labs (283/287, 330 Soda):

1. Enable students to deploy their own VMs on our computers. Our servers would have space to store VMs that students could run on our servers, on our workstations, on their laptops and on commercial sites such as the EC2 or the VMWare Student Cloud.
2. Enable student-owned laptops to access printers, licenses and disk space on our servers.
3. Provide 1GB wired connections to student-owned laptops for the quick transfer of large VM images from our servers.
4. Provide group collaboration spaces, with a large LCD, AC & network for laptop.
5. Provide powerful login servers for NX, CAD and VMs.
6. Provide expandable cluster on VMs for Hadoop.



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**Implementation - Lower Division Labs**

Lower Division labs (5000 SF space, approx 150 work areas)

Alteration	Rooms	Comments	Est Cost (computers)	Est Cost (other)
floor: replace carpet with linoleum, revise cable access	271 Soda 273 Soda 275 Soda 277 Soda	Conceal cables for safety and aesthetics; allow for furniture rearrangements		\$
lighting: replace with indirect, brighter, energy efficient overhead lighting	271 Soda 273 Soda 275 Soda 277 Soda			\$
paint walls	271 Soda 273 Soda 275 Soda 277 Soda			\$20000
new chairs & stools	271 Soda 273 Soda 275 Soda 277 Soda	@ \$150 per chair for 150 work areas		\$22500
30 bar-style tables	271 Soda 273 Soda 275 Soda 277 Soda	for 30 laptop work areas		\$
30 wired AirBears ports	271 Soda 273 Soda 275 Soda 277 Soda	for 30 laptop work areas (20% of total)	\$	
new workstations or thin clients; new LCDs	271 Soda 273 Soda 275 Soda 277 Soda	@ \$1200 per desktop for 120 work areas (80% of total)	\$160000	
new servers	5 DELL R710 (32 virtual cpus, 128GB RAM); 30TB disk	Sufficient for UD students to store & run VMs (\$20K each)	\$100000	
new HD projectors	271 Soda 273 Soda 275 Soda 277 Soda	@ \$2000 per lab	\$8000	
(no change)	200 SDH	An additional 28 seats (Linux), Tesla GPUs.		



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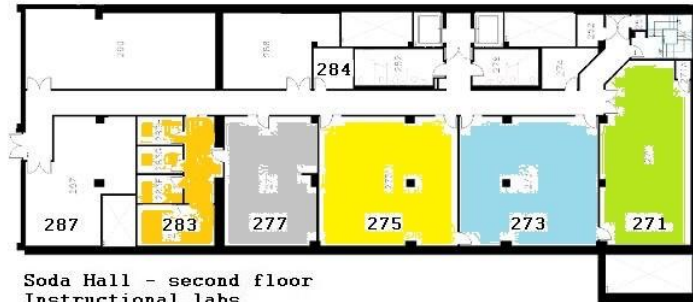
**Implementation - Upper Division Labs**

Upper Division labs (670 SF space, approx 55 work areas)

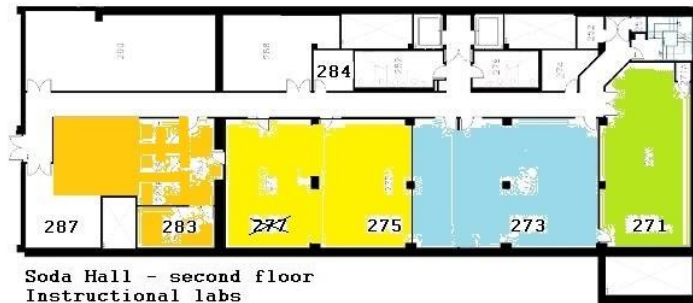
Alteration	Rooms	Comments	Est Cost (computers)	Est Cost (other)
remove walls around conference rooms to make open collaborative space and Cantasia work areas	283 Soda	Relocate ISG storage from 283G Soda to 284 Soda		\$
remove west wall to merge 240 sq ft with 283 Soda; add wall and ceiling to partition it from the DETER servers	287 Soda	Currently, unused area of machine room		\$
floor: replace carpet with linoleum, revise cable access	283/287 Soda 349 Soda	Conceal cables for safety and aesthetics; allow for furniture rearrangements		\$
lighting: replace with indirect, brighter, energy efficient overhead lighting	271 Soda 273 Soda 275 Soda 277 Soda			\$
paint walls	283/287 Soda 349 Soda			\$3000
new chairs & stools	283/287 Soda 349 Soda	@ \$150 per chair for 55 work areas		\$8250
install door or window into hallway	287 Soda			\$
install window into hallway	349 Soda			\$
collaborative group furniture & LCDs	283/287 Soda 349 Soda		\$	\$
17 new workstations with VTx and GPUs; new LCDs	283/287 Soda 349 Soda	@ \$1200 per desktop for 17 work areas (30% of total)	\$20400	
38 wired Airbears ports	laptops	for 38 laptop work areas (70% of total)	\$	
new servers	5 DELL R710 (32 virtual cpus, 128GB RAM); 30TB disk	Sufficient for UD students to store & run VMs (\$20K each)	\$100000	
(no change)	330 Soda	An additional 30 seats (MacPros)		



Room Layouts



Soda Hall - second floor  
Instructional labs  
Spring 2013



Soda Hall - second floor  
Instructional labs  
Plan 1: expand 273, 275, 283 Soda; eliminate 277 Soda



Soda Hall - second floor  
Instructional labs  
Plan 2: expand 275, 283 Soda; eliminate 277 Soda

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