it’s not just about doing…

it’s about thinking about what you are doing

2.009 Product engineering processes
2.009 Product engineering processes today

Assembly review details

Consulting strategy and preparation for assembly review
But first…

**what is an ethic?**

a code of behavior or conduct justified according to a reasoned value system

“something all politicians are lacking”

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![Bar chart showing the distribution of students' answers: correct, close to correct, and not so correct. The chart indicates a significant number of students marked their answers as correct in 2014.](chart.png)
Product architecture

name two product architectures

modular

integral

inherent to design, not an add-on probably modular unless it can’t be
Modular architecture characteristics

decoupling facilitates task allocation and out-sourcing economies of scale

reuse/standardization for developing new products

maintenance

adaptation/mass customization (combinatorial design)
Integrated architecture characteristics

**Performance:** modularity can mean performance sacrifices especially when performance is
\[ f(\text{size, shape, mass}) \]

it is easier to optimize overall system with an integrated architecture
Product architecture
list an advantage for each architecture

if you can’t remember, you won’t use it

number of students

number of advantages/disadvantages
Form follows function

Sullivan’s intent (father of modernism, skyscrapers)
Mini quiz results

Key attribute and specification: fallKnot

prevent users from rappelling off the end of rope

<table>
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<tr>
<th>attribute</th>
<th>metric</th>
<th>unit</th>
<th>value</th>
<th>owner</th>
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<tbody>
<tr>
<td>holding load</td>
<td>using cam</td>
<td>lb for seconds</td>
<td>1575 for 60 &gt; 1575</td>
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<tr>
<td>UIAA certified holding capacity</td>
<td>static load to meet UIAA</td>
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<tr>
<td>spring walking cam braking capacity</td>
<td>weight</td>
<td>kg</td>
<td>65 &gt; 65</td>
<td>LY</td>
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<tr>
<td>jams near end of rope stopping</td>
<td>dynamic load</td>
<td>lb at m/s</td>
<td>400 at 5 &gt; 400 at 5</td>
<td>SA</td>
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<tr>
<td>capacity</td>
<td>stopping force</td>
<td>kg</td>
<td>80 &gt; 80</td>
<td>LF</td>
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</table>

> 65
> 1575
> 400 at 5
> 80
Mini quiz
another one!

the principle of pragnanz is...

list 4 main steps in a structured product form-giving process
one more thing…
advanced electronics design tutorial

today at 7 PM in Pappalardo lab
see the website for details
Assembly review

Overview

digital submission 11 PM, Tuesday November 3 (red, green, blue, yellow)
digital submission 11 PM, Thursday November 5 (pink, orange, purple, silver)
Images (up to 10), CAD files, list of who-did-what, product contract

product variations
storyboards, circuit designs, etc.
Assembly review

Overview

10 minute presentations/discussion
Wednesday (red, green, blue, yellow)
Friday (pink, orange, purple, silver)

project your contract (or large mounted poster)

show your most current work!
this is not a homework assignment

can work in pairs, everyone must contribute
no make work!
avoid meaningless detail
keep working to understand user needs
keep doing tests
Assembly review

presentation tips

focus the design
(product use cycle/storyboard, design vision variants, design details for the variants)

contact should be clearly visible throughout but spend your time on the design

use your own computers. Please make sure you have adaptors. Test 7-8 PM Tuesday and Thursday in 10-250

it is a discussion, not a canned 10 minute talk. It is not about selling us on the product

think about where you would like to have input

link to upload assembly files is on home page
After beginning in 10-250 to discuss assembly review logistics and mini quiz results, we will be consulting in your Pappalardo lab team area. During this consulting session the goal will be to discuss your priorities and plan-of-attack for the assembly review this week, and to think forward to the technical review, which is just 14 days away!

More instructors/staff than listed may be present during each consulting session.

<table>
<thead>
<tr>
<th>McCord Berenzin</th>
<th>Dave Banzaert</th>
<th>Wallace</th>
<th>Weisman</th>
<th>Podoloff</th>
<th>Hu Kokernak</th>
<th>Phipps Caulfield</th>
<th>Wagner Schoenstein</th>
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