Report from Team 1

(1) What attributes and skills should characterize the B.S.ChE?

Attributes:
- ethical
- independent
- self-confident
- decisive
- professional integrity
- work ethic
- tolerant of diverse groups
- concerned with safety
- innovative
- driven to succeed
- persistence
- critical mindset
- ability to identify problems and improvements
- lifelong learning, desire for

Skills:
- problem solving
- working within constraints
- team worker
- application of conservation laws
- identify approaches to the solution of problems
- assess different alternatives for success
- experimental design, measurements, interpretation using quantitative models
- understand societal/global problems
- communicate, technical/nontechnical
- can find information

(2) How should we organize/classify the subject matter of chemical engineering?

Scale-based:
- molecular level
- nano-microscopic
- continuum
(these 3 can be further subdivided into equilibrium and nonequilibrium)

process systems engineering, including:
- engineering of living systems
- manufacturing
- case studies
Complexity-based:
linear vs. nonlinear
transient vs. steady-state
stochastic vs. deterministic

Assumptions:
math skills
basic sciences including biology

(3) How should we arrange the subject matter for presentation over four years?
year 1:
problem-solving with computers
process engineering I
steady state balances on lumped processes with thermo, reactions, separation

year 2:
molecular-level: equilibrium and rate-based

year 3:
continuum

year 4:
processes and systems

math and science go through first two years

method of delivery:
case studies and projects, which serve to integrate the material with
writing/communication, teams, ethics, safety, lab (both analysis and building)