Detailed Plan: *Information and Communication Technology for Sustainability*

1. The concept of sustainability
    a. Lecture 1: Sustainability as it developed over time in history
    b. Lab 1: Research different definitions of sustainability
    c. Lecture 2: The most common definitions and how they relate (including dimensions of sustainability)
    d. Lab 2: Write your own definition of sustainability (teamwork)
2. ICT and sustainability
    a. Lecture: Sustainability in ICT and ICT for sustainability (environmental informatics, computational sustainability, sustainable HCI, Green IT and Green ICT, and ICT for sustainability)
    b. Lab: Find more examples and classify them
    c. Lecture: Renewable energy by Prof. Reza Toossi (CSULB, energy)
    d. Lab: Research assignments for renewable energy production in CA
3. The five dimensions of sustainability
    a. Lecture: The five dimensions of sustainability (in more depth, with goal modeling)
    b. Lab: Analyze the five dimensions for a case study
    c. Lecture: Mini presentations on case study
    d. Lab: Discussion to reflect on presentations
4. The orders of effect and rebound effects
    a. Lecture: The orders of effect (LES model)
    b. Lab: Analyze the orders of effect for a case study
    c. Lecture: Rebound effects
    d. Lab: Analyze potential rebound effects in case study
5. Peak oil and climate change
    a. Lecture: Peak Oil presentation
    b. Lab: team discussions on peak oil
    c. Lecture: Climate change lecture – or watch “an inconvenient truth”
    d. Lab: Climate change game – play climatopoly?
6. Sustainable food production and permaculture
    a. Lecture: Guest lecture by Prof. Cheryl Rock (CSULB, food science)
    b. Lab: team discussion on food habits
    c. Lecture: Permaculture
    d. Lab: team discussion on challenges for permaculture
7. Smart X – green product and service development
    a. Lecture: Overview of smart technology and service development
    b. Lab: Individual research
    c. Lecture: Student presentations about smart systems
    d. Lab: Report with reflection on effectiveness of presentation
8. Behavior change and gamification of sustainability
    a. Lecture: Behavior change by Prof. Beth Karlin (UCLA, psychology)
    b. Lab: Reflection and brief essay on gamification
    c. Lecture: Gamification by Prof. Adam Moore (CSULB, film & arts)
    d. Lab: watch Jane McGonagall TED talk and discuss lecture & talk

9. Sustainable development concepts
    a. Lecture: Concepts - The Karlskrona Manifesto
    b. Lab: Comparing different designs / solutions
    c. Lecture: Concepts of decoupling, dematerialization and substitution
    d. Lab: find other solutions and discuss them
10. Sustainable development process
    a. Lecture: Sustainable development with the IMAGINE approach
    b. Lab: try out with scenario
    c. Lecture: Organizational and cultural factors during development
    d. Lab: Play through a number of scenarios with cultural factors, establish policies
11. Introduction to systems thinking
    a. Lecture: according to Systems thinking – a primer
    b. Lab: Exercises from systems thinking playbook
    c. Lecture: according to Systems thinking – a primer
    d. Lab: Exercises from systems thinking playbook
12. System dynamics and leverage points
    a. Lecture: System dynamics intro
    b. Lab: System dynamics modeling of example case study
    c. Lecture: System dynamics continued
    d. Lab: rework and refine example analysis
13. Leverage points
    a. Lecture: Leverage points overview
    b. Lab: analyze leverage points for sample system
    c. Lecture: Leverage points interaction an in-depth
    d. Lab: rework and refine leverage points for sample system
14. Sustainability Assessment
    a. Lecture: Measuring & Metrics and ISO standards (ISO 14000 & 26000)
    b. Lab: Define metrics in all dimensions for a case study
    c. Lecture: Introduction of LCA
    d. Lab: Try out LCA with a small example
15. Future concepts, saving the world, and the like
    a. Lecture: Utopias
    b. Lab: Develop your own scenario
    c. Lecture: Latest trends in research and innovations in sustainability
    d. Lab: Write your own research questions and research design