IE 507, SEM/ HUMAN-CENTERED DESIGN

An Introduction and Overview
Human-Centered Design

- Discovering human physical and mental characteristics, capabilities, and limitations,
- understanding human interaction with the built environment, and
- designing systems, devices, and environments to enhance human performance, safety, comfort, and pleasure.
The Human-Centered Design Process
(Funk's narrow perspective)

Needs, Problems, Opportunities

Operation, Test & Evaluation

Analysis

Requirements
Design Principles & Guidelines

HMS: Humans, Machines, Processes
(Model, Mockup, Prototype, Product)

Implementation

Design

Design Specifications

Users, Operators, and Other Humans
The Human-Centered Design Process

Needs, Problems, Opportunities

Design Specifications

Implementation

Design

Analysis

Operation, Test & Evaluation

Requirements

Design Principles & Guidelines

Background Research
Concept Development
Task Analysis
Detailed Task Analysis
Requirements Engineering

HMS: Humans, Machines, Processes (Model, Mockup, Prototype, Product)

Requirements Verification
Heuristic Evaluation
Usability Testing
Role-Playing
Simulation
Operational Testing

Conceptualization
Preliminary Design (PDR)
Final Design (CDR)
Trade Studies
HF Experiments

Construction
Mock-up
Fabrication
Manufacture

Users, Operators, and Other Humans

Oregon State University
College of Engineering
The Relationship of Research to the Human-Centered Design Process

Operation, Test & Evaluation

Users, Operators, and Other Humans

Analysis

Requirements

Design Principles & Guidelines

Design Specifications

Implementation

Data Collection

Data Analysis & Hypothesis Testing

Interpretation & Application of Results

Research Question(s)

Hypothesis Formulation

Research Design

HMS: Humans, Machines, Processes (Model, Mockup, Prototype, Product)
to the syllabus ...