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SYSTEMS THINKING
Working Together to Create a Sustainable World!
Peter Senge

"SYSTEM"
think of a family
Sometimes, consistent outcomes that nobody wants... What's happening?

Attention
What are we paying attention to?
Coca Cola: God reduces sugar use
WATER Scarcity
You're thirsty... millions of liters for a liter of Coke
- To grow the sugar
The CEO water Mandate: learn how to manage water, sources, uses
Political & Economic Clout
Singapore Know-how:
• Required water
• See sources
• SHARED STEWARDSHIP

WE ARE ALL PART of a LARGER SYSTEM
How do we SEE the system?
the SYSTEM: the HEALTH CARE CRISIS
• too expensive
• not reliable
• too little access
• we think
• WHY IS OUR ATTENTION focused HERE?
• WHERE IS the LEVERAGE in the SYSTEM?
• Healthy
• NEED TREATMENT
• IN TREATMENT
• NO THIS
Complex Environmental, Social, Psychological causes of illness
Disease
Oxfam: the biggest threat to poor people in the world is climate change
a Social, Economic, and ENVIRONMENTAL PROBLEM
BETTER HEALTH BETTER QUALITY LOWER COST
We can only get all THREE!
Gers lots of people working together
SEE the system we're a part of... then Ask Where is the LEVERAGE?

We are NATURAL SYSTEMS THINKERS!
the most ingenious systematic solutions are the most effective ones
• Systematic fixes don't deal with underlying causes!
• Fundamental Solutions take longer... they're often higher risk
• Side Effects either make things worse or cause whole new problems
Distinguishing High vs. Low LEVERAGE?
Short TERM vs. Long TERM
attractive, but low knowledge the Symptomatic Solution
Pressure for Short Term Results
SHIFTING THE BOXEN Archetype
Symptomatic Solution (1)
Problem Symptom (2)
Fundamental Solution (3)
Side Effect
Daisy
Re-balancing Loop
Re-balancing Loop
A Big Problem in Highly Political Issues
We are YOUNG PEOPLE
area for Collaboration
South Africa
the problem constraints individualistic help
What's Your STORY?

RECOGNIZING Patterns?
focus on the PATTERN, not on the details
What's Your STORY?

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<https://advocacy.thp.org/crosscutting-themes/systems-thinking/>

LEARNING OUTCOME

- Understanding Design in Systems
- Systems mapping techniques to visualise and analyse interconnected elements in various Community systems
- Community Engagement

ASSESSMENT

- Continuous assessment based on class participation, engagement in discussions, and completion of hands-on exercises.
- Group projects assessing the application of systems thinking principles in designing community solutions.
- Individual reflections on personal growth and learning throughout the course.
- Final presentation evaluation, emphasising the holistic approach, adaptability, inclusivity, and sustainability of the System-design solutions.

DELIVERABLES

- 2 Project Presentation (Individual/ Group)
- Systems Mapping
- A Design Proposal (Group)

EVALUATION CRITERIA

- Site Visit Reports (10%)
- Concept (20%)
- Design Development (20%)
- Final Project Presentation (40%)
- Class Participation (10%)

SCHEDULE

Day	Date		Topic (Lecture/Seminar/Discussion)	Submission, Deadline and Marks
1	11 March, Mon	11 AM	Lecture: Introduction to Design, Systems and System-oriented Design Wicked Problem Class Activity	Class Activity (10%)
		2 PM	Lecture: Introduction to the Project Site and Initiatives Class Activity	
2	12 March, Tue	10 AM	Site Visit - Start for Jehangirpuri Metro Station (Yellow Line) from the IIT Campus Take E-Ricksaws to reach Bhalaswa Land Fill, North Delhi	
		11:30 AM	Walking through Landfill > Communities at Landfill > Bhalaswa Dairy > Bhalaswa Lake Observing Dimensions of Community Systems	
		2:30 PM	Lunch and Discussion Group Work: Reflections on Site	Individual Blogs on Medium.com (Marks 10 %)
3	1 April, Mon	AM	Thematic Group Presentations: Each group will get 30 minutes to present their case centred around their theme and get feedback from the faculty group.	Site Visit Presentations 1: A poster: A0 size portrait, 841 mm x 1189 mm, is mandatory with a supporting PPT, Movie or Documentary. (Marks 20%)
		PM	Reporting	
4	6 April, Sat		Mapping Systems, along with interconnected stakeholder participation within the community	Reaching a preliminary Design Idea

5	8 April. Mon	AM	Analyse and Design a system-oriented solution for a specific challenge	Project Presentation 2 (20%)
		PM	Presentations	
6	16 April, Tue	AM	Iterative Design Proposals Talk to mentors	
		PM	Detail the proposal and discuss the presentation options	
7	19 April, Fri	11 AM	Finishing up the work	
		3 PM	Final System-Design Presentation and Reflection	Final Project (30%)
		5 PM	Exhibition	

REFERENCES

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