

Class History

- ◆ Taught at both the graduate and undergraduate levels
- ◆ Co-course coordinator

Caveat:

- ◆ For this **WHOLE** course I am teaching what has been done in past not necessarily what should be done

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Software Engineering Definition

- ◆ the process
- ◆ of systematically
- ◆ applying technological and organizational means
- ◆ to create software-intensive systems that meet
 - technical
 - economic, and
 - human
- ◆ requirements

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Who is Audience?

- ◆ Graduate or undergraduate computer science students
- ◆ Graduate or undergraduate information systems students
- ◆ MBA or undergraduate business students
- ◆ Two-year college/technical students
- ◆ System development practitioners (programmers, systems analysts, business analysts)
- ◆ Users - typically business professionals, operational staff, clerical staff involved in systems development

Paradigm?

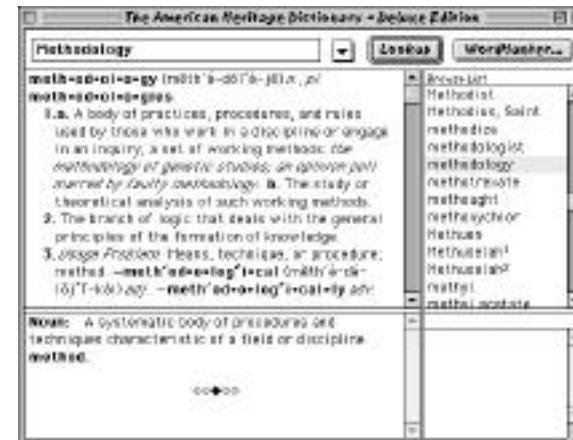
- ◆ A way of viewing things and thinking about things



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Methodology?

- ◆ Why not another methodology?



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What is Software Engineering?

Computer Science
Management
Science
Design Techniques
Problem Solving
Communication

Analysis
Design
Code
Test

Human Computer
Interaction
Artificial Intelligence
Reliability
Environments
Process Models
Testing
Metrics
Specifications
Experiments
Languages
Reuse

Tools
Methods
Concepts
Techniques
People
Procedures
Tools
Information
Policies
Objectives

Management
Documents
Life Cycle

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What is System Development?

"Of course (development) still is, and almost certainly will be, a black art whose most crucial elements remain:



- ◆ an incalculable mix of imagination,
- ◆ intuition, and
- ◆ intellectual interaction with one's fellows"

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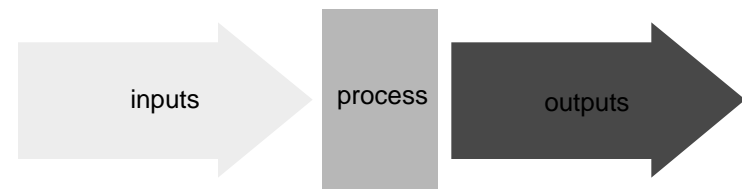
What is Systems Analysis and Design?

- ◆ *system*: a set or arrangement of things so related or connected as to form a unity or organic whole
- ◆ *analysis*: a separating or breaking up of any whole into its parts, especially with an examination of these parts to find out their nature, properties, functions, interrelationship, etc.
- ◆ *design*: to make preliminary sketches of; sketch a pattern or outline for; plan

(from Webster's New World Dictionary, second college edition, 1974)

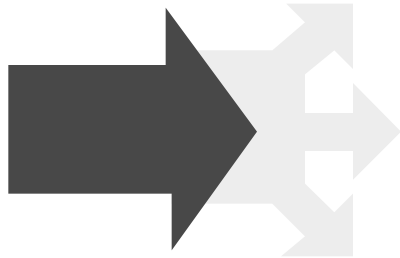
What are Systems?

- ◆ Systems have *inputs*, *processes* and *outputs*.
- ◆ Inputs to information systems are *data*.
- ◆ Outputs from information systems are *information*.
- ◆ *Garbage in - Garbage out!*
- ◆ *What about when outputs are used as inputs?*
- ◆ *Are outputs always useful information?*
- ◆ *Information - data provided in response to a specific request*
- ◆ IPO Diagram



Decomposition

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More Definitions

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- ◆ *information system*: an arrangement of data, processes, and technology that interact to support the operations and the decision making needs in an organization
- ◆ *systems analysis*: the examination of an organizational problem domain and the specification of solution requirements
- ◆ *systems design*: the technical description of a solution to meet the requirements established during systems analysis

What if General Motors had a help line?

Helpline: General Motors Helpline, how can I help you?

Customer: I got in my car and closed the door and nothing happened!

Helpline: Did you put the key in the ignition slot and turn it?

Customer: What's an ignition?

Helpline: It's a starter, a motor that draws current from your batter and turn over the engine.

Customer: Ignition? Motor? Battery? Engine? How come I have to know all these technical terms just to use my car?