#2 Systems Approach & Engineering	
and the second representation of the second r	
Definition of a System	
System is a whole, consisting of interdependent or interacting parts with a pu	v 0068
System is taken apout it loses its essential property	1 pose
→ System is NOT the sum of its parts	
A system > 2 of its parts	
V 20 Been to very	
Definition: A system is an organised complex whole, a group of pauts	
interacting in a coordinated way	j
1. Parts of the system affect the system and are affected by	it.
2. The group of parts does something (dynamic).	
3. The assemblage is of interest	1
System Concepts and Principles	
Salve pod store trailebox	1
Natural vs Human - made System	1
· Lister and the contract of the first the first the contract of the second effects is	
· Natural Systems: came into being by natural processes (planetary system)	
· Human-made: designed and operated by people (human organizations)	
· Projects exists for the purpose of creating new systems or changing	
human - made aystem	
· Papers with the mains a region of supercury warms is asserted.	
1. Goals and Objectives	
The state of the state of the control of the property of the p	
· Human - made systems are designed to do something - goals objectives	
conceived by people	
· Place to start is defining a goal of systems and a hierarchy of objectives	
· Goals are broad & Strategic, and can be broken down into objective	es
broton down into requirements	
Y	

	2. Elements and Subsystem					
	Z. Sieries & Mis Mansagottani					
	· Systems can be broken down into smaller parts					
	• These po	· These parts in combination form "assemblage" that constitutes a system				
	· Smallest part - element					
	· Parts of a system might be themselves a system — subsystem					
	· Subsystem is a system that function as a component of a larger					
	system					
	System -> Subsystem -> Subsubsystem ->> element					
3	state i sa training and the material of the state of the second of the s					
	3. Attributes					
	aboption of allignic controls of frequency and minor of allignic segments.					
	· Systems, subsystems, elements have distinguishing characteristics - attributes					
	· Describe the condition of system - qualitative quantitative.					
	· Human-mode systems - attributes are designed into the system for					
	performance and the same performance and the same same and the same an					
	100 town sould be					
3	4. Environment and Boundary					
3	F	0)	Haps Worden office mont to			
3			that influences the behaviour outcome			
			yound the control of system maker.			
	• Dystem	is separated from	its environment by boundary.			
	Might be	difficult to identi	By boundary minmered 8			
3	Two questions:					
- 100 Lagran	di hote diame atnum		the system.			
3 .	Con do ining with	Yes Contract	No.			
	Can decision maker	Yes System No Environment	Irrelevant			
7	control it	No Environment	Environment			
3	5 Gustam Gla	nichuse.	Eurosia d'anna l'Eurosia de			
3	5. System Str	ucruie				
	· Elements of subsystems are linked together by relationships - structure of system -					
3	Most custamo	incl originals	ogenie by relationships - structure of system -			
3	Systems	ma holeas man	be conceptualized as hierachical and network-			
3	ago (Miles		man -			
			Туро			

· X	
	3
A B Inputs -> Process -> Outputs	=
a b (feedback)	
hierachical Structure input process	
m status de la compania e actual e la compania de la compania del compania de la compania de la compania del compania de la compania del la compania de la c	
6. Inputs, Process, Outputs	-
becommendation of the control of the	-
· Human-made systems achieve objects by converting inputs - outputs	3
· Outputs: end result of a system and the purpose	
Inputs: raw materials, resources, prior steps for the system to operate	
· Process: means by which the system transforms inputs to cutputs	
saturdinto - enimerimente min monte anno en esta de esta materia en encontrata en esta en esta en en entre en e	
7. Constraints and Conflicts	
The second and the state of the second secon	Ţ
· Limitations that inhibit the ability of the system to reach goals	
L time and money	
" Human-made systems the objectives sometime conflict, reduces the ability	1
of them or the overall system	
Removing conflicts enables the overall system to meet objectives	
integration and compared and make and the	=======================================
inherest ye vannous so not having a secondar.	
8. Integration	
· System to perform effectively and achieve goals, all elements must work in	unison
· Integration: designing, implementing, operating a system to achieve pre-	
specified objectives through coordinated functioning.	,
tourmorier 3 tarmories 3 18 Si e enco	
9. Open a Closed Systems	
may 3	
· Closed system is self-contained - no regard for the environment	
· Open system adapts to its environment	
· Any system must be adaptable to its environment to be open	
· Social system = open	

	and the second of the second o
	System Approach
	Tank tokk saments of temporal vision in accommon kercam, palandrah di asami i
	Methodoly for solving problems and managing systems that accounts for:
3	* oereim
3	1. Objectives and performance criteria of a system
3	2. Environment and constraints of a system
3	3. Resources of the system
3	4. Elements of the system, functions attributes and performance measures
3	5. Interaction among elements
3	6. Management of the system
	7. Methodology employs the models
3	Alasmania mana manakar ad disa an amang dasar 🕶
3	System model
3	a de la constante de la consta
3	· Model is a simplified representation of the world, abstracts the essential features of
	the system was a supposed where the following the
	· Physical Model is a scaled down abstraction of the real system.
	· Conceptual Model depicts the elements, structure and flow in terms of a
	Schematic diagram / mathematical model.
	12 days lath makaya prizaggeratik
	* System Life Cycle
	of N ≠3000 that one go
3	· Life eyde of a human-made systems is a series of logical, structured steps
(Jos	called the systems development cycle
	· conception - definition - design - development - fabrication - testing
	launch - production - operation - maintenance.
	· System Engineering prescribed stages for a large scal development project
3	montageneral taginal time statist conservational servation & 44
3	* Development installation
3	and the state of the control of the
3	in succession of the contract of the contract of
	Enhancement Operation
	8 Replacement + Termination
	Туро

* System Engineering	
	-
Science of designing complex systems in their totality to insure that the	2
components and subsystems making up the system are designed, fitted	24
together, checked, operated in the most efficient way.	
marije o se manije, marrid na providenje di	
→ Way to bring the whole system into being and to account for	
its whole life and - ind operation and decommissioning.	
services in the service of the servi	
* Dimensions of System engineering:	
supply set in / three report /	5
1. SE is a multifunctional, interdisciplinary concurrent effort	
needs become the basis for defining system requirements	
4. Adresses the systems structure and elements, its functional	
and physical design	
3. Takes into account the way system will be produced, operated	
maintained and finally disposed of - entire life cycle.	2
system design in tegration	
validation.	
1. top-down analysis of details	
Subsystem design (decomposing system into parts integration 2. bottom-up synthesis (building	
verification (2007)	
up and integrating pauts into	
Sucossively larger parts)	1
3. evaluation (results = requiren	rens)
comparent	
design and a result of the state of the stat	
H 3 Gustana dayalanmant Cycle and Parinel Consortion	
# 3 System development Cycle and Project Conception	
. Human mode suctem Larmination is not inquestable	
 Human mode system termination is not inevetable. System Kept alive through enhancement/replacement 	
· Every human made system begins as a project and ends as another	
project begins as a project will ends as a finite	