Lecture - 12
& Blocking & Non-Blocking Assignments
*Recap: Examples: 2: MUX
D +/+ negative edge triggered
D f/f negative edge triggered 4 bit counter
al description of the second o
Procedural Assignment Recap  Procedural assignment = initial block  alwans block
· Procedural assignment -> Einstial block
· INS of an procedural assignment can be of
tupe REGISTER Tie reg, integer, real, time)
· Two types of procedural assignment statements
i) Rlocking (denoted by = )
· LHS of an procedural assignment can be of type REGISTER (i.e. reg, integer, real, time)  · Two types of procedural assignment statements  i) Blocking (denoted by "=")  ii) Non-Blocking (denoted by "<=")
& Blocking Assignment
· General syntax:
variable_name = expression;
specifies blocking assignment.
· Blocking statements are executed in the order
they are specified in a procedural Hock.
they are specified in a procedural block.  Execution of next assignments is BLOCKED till
the current assignment gets executed.
· This does not mean that assignment in other
always fenitial blocks will also be blocked
-fill over-line is his last
tell execution is finished.

Scanned with CamScanner

* Enample:
integer a, b, C;
initial
begin
a = 10;
b = 20;
C = 15;
a = b + c; $a = 35$
b=a+5; 116=40
$c = a - b; \qquad    c = -5$
ling
- * Example
integer a, b, c;
initial
begin
a= 10; at time = 0
6-20;
C=151=
#5 - a=b+c;   at time = 5
#10 b = a+5;   at time = 15
c = a - b; (at time = 15
end
end
* Non-Blocking Assignment
Non-Brocking 2 mg
· lecueral syntax:  variable name (=) enpression;
variable name (=) enpression :  sepecifies non-blocking assignment-
Sepecifies non-obocking assignments without  blocking execution of statements that follow  within the always/wilial block.
« L'allows scheduling of assignment without
Blocking execution of territial block.
within the aways

· The assignments to the larget gets scholuled
for the and of the simulation cycle i.e. at the
end of initial /always block.
This allows concurrent procedural avergnment, suitable for segmential logic. (Analogous to signal obiver of VHD2)
exitable for segmential looks. Analogous to
sacrate for software of AFUDI)
enginal overer of VIIII)
*Example:
integer a, b, c;
initial
begin $a = 10$ ; $a = 10$ ; $a = 10$ , $a = 10$ , $a = 10$ , $a = 10$
b = 20 $(a = 10, b = 20 8 c = 15)$
C = 15.
end 11
a=10; $a=10$ , $b=20$ & $c=15$ $c=15$ ; $a=10$ , $b=20$ & $c=15$ end  Both initial blocks
begin
6 <= #5 a+5; /6= 15 at line=5
0 <= #5 a-b; // c= -10 at time = 5
end
alivite a cerilor code la sasa values de
D'Write a verilog code to swap values of 2 variables vising blocking statement -
- variable and a second
Depeat above using non-blocking statement.
the Committee of the Co