

Z.H.C.E.T., Aligarh Muslim University – Aligarh

Network & Embedded Systems Lab

(COC 4950)

REPORT

Objective: Design and simulate a 5-bit Odd-Down Counter.

Submitted by: **Ravi Sahni**

Faculty No.: **17 COB 085**

Enrolment No.: **GJ 7718**

Simulation Environment: ModelSim PE Student Edition 10.4a

VHDL Code:

```
C:\Modeltech_pe_edu_10.4a\examples\oddcouter.vhd
File Edit View Tools Bookmarks Window Help
C:\Modeltech_pe_edu_10.4a\examples\oddcouter.vhd - Default *
Ln#
1  --Name: Ravi Sahni
2  --Faculty No.: 17 COB 085
3  --Enrol. No.: GJ 7718
4  --Assignment: Design and simulate a 5-bit Odd-Down Counter
5
6  library ieee;
7  use ieee.std_logic_1164.all;
8  use ieee.std_logic_unsigned.all;
9
10 entity oddcounter is
11 port
12 (   C, CLR : in  std_logic;
13     Q : out std_logic_vector(4 downto 0)
14 );
15 end oddcounter;
16
17 architecture bhv of oddcounter is
18     signal tmp: std_logic_vector(4 downto 0);
19     begin
20         process (C, CLR)
21         begin
22             if (CLR='1') then
23                 tmp <= "11111";
24             elsif (C'event and C='1') then
25                 tmp <= tmp - 2;
26             end if;
27         end process;
28         Q <= tmp;
29     end bhv;
```

Ln: 30 Col: 0 **

Waveform #1:

The screenshot displays a logic analyzer interface with a menu bar (File, Edit, View, Add, Format, Tools, Bookmarks, Window, Help) and a toolbar. The main display area shows a digital waveform. On the left, a 'Msgs' pane lists three signals: /oddcounter/C (value 1), /oddcounter/CLR (value 0), and /oddcounter/Q (value 5'd31). The main display shows a green digital waveform on a black background. The waveform is a square wave with a period of 100 ns. The time axis is labeled from 103 ns to 1103 ns. The signal /oddcounter/Q is shown as a green square wave with a period of 100 ns. The signal /oddcounter/CLR is shown as a green square wave with a period of 100 ns. The signal /oddcounter/C is shown as a green square wave with a period of 100 ns. The waveform is labeled with values 5'd31, 5'd29, 5'd27, 5'd25, 5'd23, 5'd21, 5'd19, 5'd17, 5'd15, and 5'd13. The time axis is labeled with values 200 ns, 300 ns, 400 ns, 500 ns, 600 ns, 700 ns, 800 ns, 900 ns, 1000 ns, and 1100 ns. The status bar at the bottom shows '103 ns to 1103 ns'.

Video Clip:

<https://drive.google.com/file/d/1lyfYRsUwWrXOJsMSFaccpQLc7lz6qf25/view?usp=sharing>