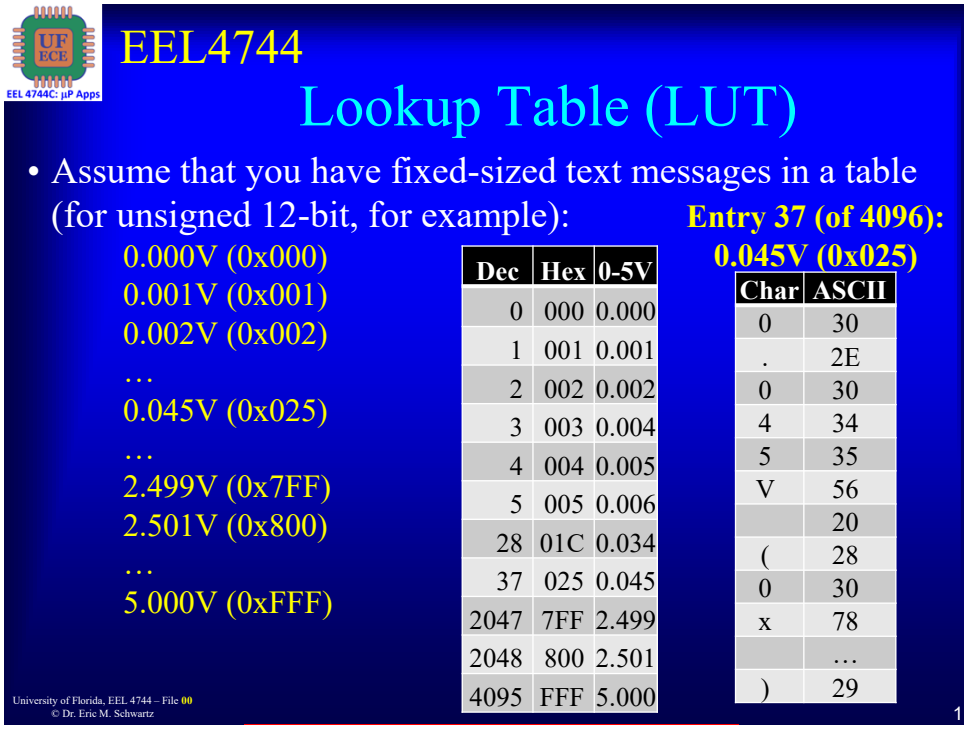
EEL4744
Lookup Table (LUT)
• Assume that you have fixed-sized text messages in a table (for unsigned 12-bit, for example):
0.000V (0x000)
0.001V (0x001)
0.002V (0x002)
…
0.045V (0x025)
…
2.499V (0x7FF)
2.501V (0x800)
…
5.000V (0xFFF)
Dec Hex 0-5V
0 000 0.000
1 001 0.001
2 002 0.002
3 003 0.004
4 004 0.005
5 005 0.006
28 01C 0.034
37 025 0.045
2047 7FF 2.499
2048 800 2.501
4095 FFF 5.000
Entry 37 (of 4096):
0.045V (0x025)
Char ASCII
0 30
. 2E
0 30
4 34
5 35
V 56
20
(28
0 30
x 78
…
) 29
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EEL4744
Storing and Retrieving Messages
• How many bytes (ASCII characters) per message?
> Examples: 0.045V (0x025) / 2.499V (0x7FF)
123456789ABCDE 123456789ABCDE
> So one answer: 14
> Is there a better answer? Yes! 4+3=7 (4 digits for decimal voltage, 3 for hex)
• In memory can store as follows:
> For 0.045V (0x025), store 0045025
> For 2.499V (0x7FF), store 24997FF
• How do you know where to lookup your message?
> Make a formula to determine the message address for each of the numbered messages
MsgAddr = StartAddr + 7*MsgNum
• What if the messages have uneven lengths?
Use an end of string (EOS) at end of each message
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