

## WEEK 1

### Computer Systems Refresher and Bash Kick-start

Prerequisite Modules: N/A

Sr. No.	Topic	Difficulty Level (L, M, H)	Lab Outline	Comments	Completed (Y/N)
1	Physics of Electricity	L	N/A		Y
2	Power and Efficiency, ESD, EMC, EFT	L	N/A		Y
3	Analog and Digital Electronics	L → M	Generate Analog waveform using soundcard input and display using "Xoscope". Generate Analog and Digital Waveforms using "siggen" and "pads" utilities; and display using "Xoscope".	Pending, to be completed Mon	N
4	Number System - Bases	L	Practice lab on converting a String into base 2, 8, 10, 16. Signed Unsigned, and 2's complement	Binary, Octal, Hex, Decimal	Y
5	Number System - Conversion	L	Convert from base 2 to 8, 2 to 10, 2 to 16, and Similarly between other bases.		Y
6	Floating-Point Arithmetic (IEEE 754)	L → M	Convert a decimal to floating point number i.e. Pi value in IEEE 754 format split in sign, exponent, and fraction, restore and estimate Precision loss	C Code also submitted	Y
7	Error Control: CRC and Checksum	M	Checksum, CRC16 and 32, CRC vs Checksum		Y
8	Opensource Philosophy	L		Movie to be watched: Revolution OS	N
9	Opensource vs. Closed Source	L			Y
10	Opensource Licensing Models	L	Study 4 models: GNU, MIT, CC, BSD		Y
11	VIM editor	L	Fundamentals, basic subset of commands	create, edit, insert, cut, del, paste, Search, replace	Y
12	Bash basics	L	Variables, functions, scripts, input, output, cli		Y
13	Bash I/O Redirection, Pipes, FIFO	L	Pipes, >, >>,  , <, &	Write a infinite bash loop and Execute with &	Y
14	Bash STDIO, STDOUT, STERR	L → M	Define a custom handle i.e. 3 and redirect to it	Submission for Mon	N
		<b>L = 10</b> <b>L → M = 3</b> <b>M = 1</b> <b>M → H = 0</b> <b>H = 0</b>			