DEPARTMENT OF ELECTRNICS & COMMUNICATION ENGINEERING, KITSW

COURSE: **U14EI 205 - BASIC ELECTRONICS ENGINEERING**	**ECE-I, Semester-II, 2015-16**

FEW TIPS ON EFFECTIVE PRESENTATION

I appreciate the effort put in by ECE-I students. Majority, who are following class lectures, did really well. You got very good material in your answer, but are failing in presentation. PRESENTATION OF MATERIAL IS MORE IMPORTANT.

Certain observations I made while correcting your assignments:

- **YOU NEED TO DRAW ATTENTION OF THE EXAMINER**
  (*Examiners will be correcting hundreds of answer scripts,* ***Your answers must look unique*****…..**)
  - Keep side-headings, wherever necessary, and underline them
  - Present the material point-wise
  - Underline important statements
  - Keep important expressions and calculated answers for given problem in a BOX
  - Use technical terms related to question and underline them ***when used for first time***

- **A PICTURE IS WORTH A 1000 WORDS**
  - Present your material with necessary figures
  - You are studying engineering. Make every effort to draw figures very neatly and to the scale.
  - Make sure that axes are properly marked without fail
- **AN EAQUATION IS WORTH A 100 WORDS**
  - Present your material with necessary equations related to the question asked
  - Mention all the variables with their units
- **STATEMENTS AND DEFINITIONS ARE TO BE REPRODUCED AS THEY ARE STATED**

When I interacted with few of you, I got the following answer: *" sir, in question it was asked to "describe". So we wrote complete theory".*

Dear students !, Please remember, you are going to become technocrats. Math is the basis. You all need to be well equipped with math and its effective use in engineering. Be prepared & Do not hesitate to write equations related to theory.

Example 1: Most wrote the following statement and left.

Reverse saturation current of a diode boubles for every 10 ^0C *rise in temperature.*

Remember, it would be worth writing the following equation:

$$I_{02} = I_{01}\left(2^{\left(\frac{\Delta T}{10}\right)}\right);$$

Don't leave here. Mention what are those variables …

Where, I_{01} = Reverse saturation current at temp T_1 ^0C

I_{02} = Reverse saturation current at temp T_2 ^0C

$\Delta T = (T_2 - T_1)\,^0C$

Example 2: Most wrote about V-I characteristics of PN junction diode without writing equation for diode current equation (*school going children interested in electronics can do that* !).
Without that equation you can't justify that the forward characteristics rise exponentially.

$$I = I_0\, e^{\left(\frac{v}{\eta V_T}\right)};$$

Do not stop here. Mention all the variables with units …

Where, I = forward current through the diode (Amp)

I_0 = Reverse saturation current through the diode (Amp)

v = forward voltage applied across the diode (Volts)

$$\eta = \begin{cases} 1\,; \textit{ for Ge} \\ 2\,; \textit{ for Si} \end{cases}$$

V_T = Volt equivalent of temperature (Volts) = $\frac{T}{11,600}$ Volts, T in Kelvin

At room temperature (27 ^0C = 300 K), V_T = 300/11,600= 0.025862 V $\approx$ 26mV

Example 3: You derived expression for Fermi level for an intrinsic semiconductor and stated correctly that it lies in the middle of the forbidden band.

You should have also shown it in energy band diagram (EBD).

Also while drawing EBDs, they must be drawn to scale. Then only you will be successful in showing that for

(i) **Conductors**: No forbidden band gap (E_g= 0 eV) as VB and CB overlap
(ii) **Insulators**: Wide forbidden band gap (E_g > 5 eV)
(iii) **Semiconductors**: Band gap ($E_g \approx$ 1 eV) is in between that of a conductor and insulator

Example 4: Few wrote about signals, without showing or drawing any signal

Bottom-line: PLEASE ATTEND CLASSES REGULARLY, CONCENTRATE AND FOLLOW LECTURES, TAKE RUNNING NOTES OF THE LECTURE …

Faculty: *K. Ashoka Reddy, Room #: BI-208*