VEER NARMAD SOUTH GUJARAT UNIVERSITY

Syllabus for B. Sc. Semester V

Subject: Physics (PHY-5010)

Paper – X

[2 credit course- 2 hours per week]

Unit – I **Instruments** **Duration: 15 hrs**

Electron microscope (4.5)

Discovery (5.1), properties of positive rays (5.2), positive rays analysis-Thomson's parabola method (5.3), Aston's mass spectrograph (5.4), Bainbridge mass spectrograph (5.4), Dempster's mass spectrograph (5.6), mass defect and packing fraction (5.7)

Constant deviation spectrograph (24.2), (ultraviolet spectroscopy) introduction (24.5), quartz spectrograph for near UV region (24.6)

Text book: Modern physics by R Murugeshan, S Chand & Company Ltd. (15^{th} edition)

Unit – II **Digital Electronics** **Duration: 15 hrs**

Logic Gates:

Logic gates (15.4), basic gates (15.4.1), other logic gates (15.4.2), Boolean Algebra (15.5), symbols in Boolean Algebra (15.5.1), Boolean laws (15.5.2), De Morgan's laws (15.5.3), circuits using only NAND/NOR gates (15.6), realization of logic gates using NAND gates (15.6.1), realization of logic gates using NOR gates (15.6.2), implementation of logic circuit from truth table (15.7), sum-of-product method (15.7.1), product -of- sum method (15.7.2), Karnaugh map (15.8), Karnaugh map construction (15.8.1), simplification using Karnaugh map (15.8.2), don't care conditions (15.8.3), arithmetic circuits (15.9), half-adder (15.9.1), full-adder (15.9.2), binary adders (15.9.3), half-subtracter (15.9.4), full- subtracter (15.9.5), half-adder/ subtracter (15.9.6), 2's complement adder/ subtracter (15.9.7)

Text book: A text book of Electronics by S Chattopadhyay,
New central book agency, Kolkata

Note: Illustrative problems on all the relevant topics should be covered.

REFRENCE BOOKS:

1. Instrumentation by Rangan, Sarma & Mani, Tata McGraw Hill
2. Instrumentation by B Jones
3. Digital electronics by Gothman, PHI publication
4. Microelectronics by Millman & Grabel, McGraw Hill
5. Integrated electronics by Millman & Halkias, McGraw Hill
6. Digital principles & applications by Malvino & Leach, Tata McGraw Hill
7. Digital computer electronics by Malvino, Tata McGraw Hill
8. Digital electronics, principles & applications by Tokheim, Tata McGraw Hill