**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Even Semester**

**Session (2018-19)**

**Class: B.Sc 4th, 6th sem Name of the Teacher: NEHA**

**Subject: Quantum physics/ electronics**

**and solid state devices Period : IVth , IST**

**Paper : C, B Room No : 221, 126**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 14 /01/2019 – 19/01/2019 | Production of X-Rays and X-ray spectra |
| Week 2 | 21/01/2019 –  25/01/2019 | Origin of continuous and charactetristics X-Ray spectra  Structure and working of JFET, characteristics, and transconductance curve |
| Week 3 | 28/01/2019 –  2/02/2019 | Mosley law and Auger effect.  FET amplifier and its voltage gain, structure and working of MOSFET |
| Week 4 | 4/02/2019 –  9/02/2019 | Derivation of Maxwell’s thermodynamical relations  and applications  Feedback in amplifier, voltage gain of negative feedback amplifier |
| Week 5 | 11/02/2019 –  16/02/2019 | Cooling produced by adiabatic stretching  Advantages of negative voltage feedback, negative feedback current circuit, emitter follower |
| Week 6 | 18/02/2019 –  23/02/2019 | Adiabatic compression, change of internal energy with volume  Theory of sinusoidal oscillations, loop gain and phase, lead-lag RC circuit |
| Week 7 | 25/02/2019 –  02/03/2019 | Change of state and Clayperon Equation  Wien bridge oscillator, Barkhausen criterion of sustained oscillations |
| Mid Semester Exam | | |  | Optical and acoustic modes, Density of modes/Positive feedback amplifier LC and Colpitts oscillators |
| Week 8 | 11/03/2019 –  16/03/2019 | Thermodynamical treatment of Joule-Thomson effect  Hartley oscillator, OPAMP: characteristics of ideal and practical OPAMP 741 |
| Week 9 | 18 /03/2019 –  22/03/2019 | **First Week March (Mid Semester Exam)** |
| Week 10 | 25/03/2019 –  30/03/2019 | Use of Joule-Thomson effect for liquification of helium    Open-loop and close-loop gain, characteristics and application-inverting and non-inverting amplifier, adder, subtractor |
| Week 11 | 1/04/2019 –  6/04/2019 | Production of very low temperature by adiabatic  demagnetisation  Differentiator and integrator, comparator, timerIC555, pin diagram and its application as astable and monostable multivibrator |
| Week 12 | 8/04/2019 –  12/04/2019 | Molecular bonding, H2+ion and H2  Analog and digital circuits, binary numbers, decimal to binary conversions, AND, OR, NOT gate, NAND , NOR gates as universal gates, XOR and XNOR gates |
| Week 13 | 15/04/2019 –  20/04/2019 | Molecular spectra, selection rules  DE Morgan’s theorem, simplification of logic circuits using Boolean algebra, Minterms and Maxterms, conversion of a truth table into an equivalent logic circuit by sum of products method. |
| Week 14 | 22/04/2019 –  27/04/2019 | Symmetric structures, rotational vibrational levels  and spectra of diatomic molecules, vibration-rotation levels  Analog and digital communication systems, Amplitude and Frequency modulation, power in AM wave |
| Week 15 | 29 /04/2019 –  3/05/2019 | Electronic spectra of molecules, Franck Condon principle fluorescence and phosphorescence.  Generation and detection, Brief account of Satellite communication , Sky-wave communication, Mobile communication |