MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Odd Semester)
Session–(2025-2026)

Name of the Teacher: Dr. Monika
Department: Department of Physics

Class: B.Sc. III computer science and applications

Subject: Electronics and Solid State Devices-1 (Paper B)

Section (s): Voc

S.No.	Date (Monthly) From	To	Topics to be Covered	Academic Activity Undertaken*
	From	**To**		
			Odd semester	
1.	24th July 2025	31th August 2025	CRO, Block diagram, construction and principle of working, Use of CRO for frequency, time period, special features of dual trace, phase measurements. Energy band diagrams in semiconductors, Direct and indirect semiconductors, Formula to calculate Position of Fermi level in p and n semiconductors, Barrier formation, energy band diagram of p-n junction, Formula for Depletion width, current flow mechanism in forward and reverse biased diode, V-I characteristics. Static and dynamic resistance, Depletion and diffusion capacitance, zener diode, voltage regulation circuit using zener diode, LED, photodiode and solar cell.	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems
2.	1th Sept. 2025	30th Sept. 2025	Diode circuits, Clipping circuits, Rectification: half wave, full wave and bridge rectifiers, filter circuits (C, LC and π filters). Rectification efficiency and ripple factor in LC filter , voltage multiplier circuits. Bipolar Junction transistors:	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems (v) online material

			Structure and working, different currents in transistor, switching action.	
3.	1st Oct. 2025	31st Oct. 2025	Characteristics of CB, CE and CC configurations, Active, cutoff and saturation regions, Load line analysis of transistors, Q-point, Transistor biasing and stabilization of operating point, fixed bias, collector to base bias, bias circuit with emitter resistor, voltage divider biasing circuit.	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems (v) online material
4.	1st Nov. 2025	15th Nov. 2025	Working analysis of CE amplifier using h-parameters, current, voltage and power gain, input and output impedance. Class A, B and C amplifiers.	(i) Lecture method (ii) PPt (iii) Group discussion (iv) Notes (v) Numerical Problems

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Name of the Teacher/s: Dr. Monika

Department; Physics

Class: B.Sc. II computer science and applications
Subject: Optics and Lasers
Section (s) Voc

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	**To**		
			Odd semester	
1.	24/07/2025	31/8/2025	Interference, Concept of coherence, spatial and temporal coherence, coherence time, coherence length, area of coherence. Conditions for observing interference fringes. Interference by wavefront division and amplitude division. Young's double slit experiment, Lloyd's mirror and Fresnel's biprism, phase change on reflection. Newton's rings, Michelson interferometer—working, principle and nature of fringes. Interference in thin films, Role of interference in anti-reflection. Multiple beam interference, Fabry-Perot interferometer. Diffraction: Huygen-Fresnal theory half period zones, zone plates. resolving power of microscope and telescope	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems
3.	01/9/2025	30/9/2025	Diffraction grating, resolving power, Polarization: Concept and analytical treatment of unpolarised, plane polarized and elliptically polarized light. Double refraction, Nicol prism, sheet polarisers, retardation plates. Production and analysis of polarized light (quarter and half wave plates). Laser Fundamentals: Interaction of light with matter: Absorption, spontaneous emission, stimulated emission, Wave mechanical explanation	(i) Lecture method (ii) Group discussion (iii) Notes (iv) Numerical Problems

| 4. | 01/10/2025 | 31/10/2025 | Properties of Spectral Lines, Temporal and spatial coherence, Charatertistics of stimulated emission, Einstein coefficients and their relations, Light amplification and threshold condition, Population inversion, Doppler broadening & Natural broadening (qualitative account only), Principal pumping schemes, Three level and four level laser schemes. Laser Systems: Types of lasers, Construction and working of Ruby, Nd: YAG, He–Ne, Dye and CO_2 lasers. Semiconductor laser (Qualitative idea) Applications of lasers—a general outline, Holography: Principle, recording of hologram and reconstruction of image. (qualitative only). | (i)   Lecture method
(ii)   Group discussion
(iii)   Notes
(iv)   Numerical Problems |
| 5. | 01/11/2025 | 15/11/2025 | Fiber Optics: Photonics, Optical fibre, Construction, Numerical aperture, acceptance angle, skip distance, Step index fibre – single mode and multimode, Graded index fibre, Losses in optical fibre, Applications of optical fibre. | (i)   Lecture method
(ii)   Group discussion
(iii)   Notes
(iv)   Numerical Problems |

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans

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*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method