

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Odd Semester)
Session – (_2020-2021_)

Name of the Teacher: Dr. Ishita Sharma

Department: Physics

Class: B.Sc (II)

Subject: Optics And Lasers-I

Section (s): Non-Medical Section A, Section B and Vocational

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	19 th Sep	30 th Sep	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.	Lecture method, Online sources PPT
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
2	1 st Oct	31 st Oct	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	Lecture method, Online sources Group discussion

			interference in anti-reflection. Multiple beam interference, Fabry-Perot interferometer, nature of fringes, finesse	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
3	1 st Nov	30 th Nov	Huygen-Fresnal theory half period zones, zone plates. Distinction between Fresnel and Fraunhofer diffraction. Fraunhofer diffraction due to single slit and intensity distribution, double slits & multiple slits(qualitative).	Lecture method, Online sources Group discussion
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
4	1 st Dec	31 st Dec	Fraunhofer diffraction at rectangular (qualitative discussion) and circular apertures. Effects of diffraction in optical imaging	Lecture method, Online sources PPT You Tube Videos
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
5	1 st Jan	31 st Jan	resolving power of microscope and telescope, diffraction grating, its use as a spectroscopic element, resolving power, Moire's fringes, Concept and analytical treatment of unpolarised, plane polarized and elliptically polarized light. Double refraction	Lecture method, Online sources Group discussion, You Tube Videos
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
6	1 st Feb	15 th Feb	Nicol prism, sheet polarisers, retardation	Lecture method, Online sources,

			plates. Production and analysis of polarized light (quarter and half wave plates)	Group Discussion
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

***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

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Even Semester)
Session – (_2020-2021_)

Name of the Teacher: Ishita Sharma

Department: Physics

Class: B.Sc (II)

Subject: Optics And Lasers-II

Section (s): Non-Medical Section A, Section B and Vocational

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	15 th March	31 th March	Absorption, spontaneous emission, stimulated emission, Wave mechanical explanation, Properties of Spectral Lines, Temporal and spatial coherence, Charatertistics of stimulated emission, Einstein coefficients and their relations,	Lecture method, Group Discussion, YouTube videos, Online sources
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
2	1 st April	30 th April	Light amplification and threshold condition ,Population inversion, Kinetics of optical absorption (qualitative account only), Qualitative account of Collisional broadening, Doppler	Lecture method, Group Discussion, Online sources PPT

			<p>broadening & Natural broadening, Mechanism of Luminescence. Lasing action, Components of Laser, Elementary theory of optical cavity, longitudinal and transverse modes, Principal pumping schemes, Three level and four level laser schemes.</p>	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
3	1 st May	31 st May	<p>Types of lasers, Ruby and Nd : YAG lasers. He-Ne, Dye and CO₂ lasers – construction, mode of creating population inversion and output characteristics</p>	<p>Lecture method, Group Discussion, Online sources PPT</p>
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
4	1 st June	30 th June	<p>Applications of lasers—a general outline, Holography. Principle, recording of hologram and reconstruction of image.</p>	<p>Lecture method, Group Discussion, Online sources PPT</p>
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
5	1 st July	31 st July	<p><i>Fiber Optics</i> : Photonics, Optical fibre, Construction, Numerical aperture, acceptance angle, skip distance, Step index fibre – single mode and multimode, Graded index fibre, Losses in</p>	<p>Lecture method, Group Discussion, Online sources PPT</p>

			optical fibre, Material losses and Rayleigh scattering, bending losses, Intermodal and intramodal dispersion. Splicing techniques, Optical fibre based communication system, Medical applications	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

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