

AS/PHY-1



BARASAT COLLEGE

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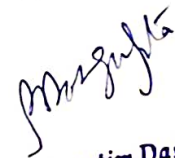
Website:www.barasatcollege.ac.in

Ref No. BCN/ADD/DEPT_PKYS/0901/2021

Date: 30th August, 2021

NOTICE

This is to notify that the Department of Physics will conduct an Add on Course on Waves and Oscillations from 6th to 16th September, 2021 on Google Meet from 4.00 to 7.00 P.M. Interested students should register for the course to the H.O.D, department of Physics within 5th September, 2021.


Dr. Parthapratim Dasgupta
.M.A, M.Phil, Ph.D
Principal
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ADD ON Course Title: Waves and Oscillations

PLATFORM - GOOGLE MEET

DATE AND TIME - 6-16 SEPTEMBER, 2021, 4.00 -7.00 PM

Physics of wave and oscillations play an important role in our daily lives. All of our musical instruments, communication gadgets and many electronic devices function on the principle of oscillations and waves. In this course, theoretical knowledge and understanding related to waves and oscillations will be covered along with its application in our real world.

First year students of physics and mathematics are eligible for the course

Course details:

Day 1: Basic knowledge related to waves and oscillations, idea of time period, frequency, 1d simple harmonic oscillator (SHM), equation of SHM and its solutions, superposition of SHMs, Lissajous figures, numerical Day 2: Damping forces, damped simple harmonic motion and its solutions, forced vibration and resonance, electrical equivalent of a mechanical oscillator

Day 3: Coupled vibration, normal modes and normal coordinates, amplitude and velocity resonance, Q-factor of oscillator

Day 4: Wave equation, solution of wave equation, velocity of longitudinal waves in solid and gas, energy distribution in plane progressive sound waves


Day 5: concepts of vibration of strings, standing waves, energy of a vibrating string, interference of sound waves, plucked string.

Day 6: Fourier analysis, wave pulses, application of Fourier analysis, phase velocity, group velocity and their relationship.

Day 7: Acoustics of a building introduction, requirement of a good auditorium, reverberation and optimum reverberation, reverberation time in a dead room, Sabine's formula

Day 8: Ultrasonic vibrations, generation of ultrasonic vibrations, detection of ultrasonic vibrations, applications of ultrasonic waves

Day 9: Waves in optical systems, laws of reflection and refraction, rays and wavefronts, propagation of wavefronts Day 10: Interference and diffraction, Newton's ring, width and shape


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of interference fringes, interference with white light and colour effect, Fraunhofer diffraction.

Books and References:

Vibrations and waves: A.P. French (MIT Introductory Physics

Course) Physics of waves and oscillations: H. J. Pain

Instructor : Dr. Manik Kr Sanyal, Associate professor of physics, Department of physics, Barasat College, Barasat, West Bengal.



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