Birla Institute of Technology and Science Pilani
K K Birla Goa Campus

First Semester 2020 – 2021
Course Handout

Date: 22/10/2020

Course No. : PHY F110 **Course Title :** Physics Laboratory - I

Course Instructors :

Instructor Name	Email id (@goa.bits-pilani.ac.in)	Chamber Number
Prof. E. S. Kannan (IC)	**eskannan**	**CC108**
Dr. P.N.Deepak	**deepakpn**	**CC-112**
Prof. Ram Shanker Patel	**rsp**	**C-214**
Dr. Tarun Kumar Jha	**tkjha**	**B-106**
Dr.Indrani Chakraborty	**indranic**	**CC-109**
Mr. Kiran V	**kiran.vktm@gmail.com**	**C-113**
Mr. Abhay	**p20180031**	**C-113**
Mr. Sourav Kesharee Sahoo	**p20180033**	**C-113**
Mr. Mrinmoy Basak	**p20180411**	**C-113**
Mrs. Gorav	**p20180412**	**C-113**
Mr. Manish Kumar Sharma	**p20190006**	**C-113**
Ms. Bhagya Krishnan	**p20190007**	**C-113**
Ms.Ashmita	**p20190008**	**C-113**
Mr. Naresh Kumar Patra	**p20190033**	**C-113**
Mr. Prashant Thakur	**p20190072**	**C-113**
Mr. Manoj Kumar	**p20190073**	**C-113**

Course Description:

Physics lab 1 experiments are designed to give students an experimental flavor of concepts related to mechanics, oscillations and waves. The course will help the students to validate and verify the theoretical concepts through experimentation and data analysis. Apart from developing their basic experimental skills, students will be taught to analyze and report the type of error propagating in their experiments due to unavoidable constraints such as friction, instrumental defects and human judgement using appropriate error analysis technique. More importantly, the course is intended to develop strong work ethics, discipline and honesty at workplace among students.

Text Book:

Laboratory Manuals (available on the Moodle/LMS)

Suggested Reference:

1.Introduction to Mechanics by *Kleppner and Kolenkow* , Tata McGraw-Hill publishers

2. Vibration and Waves by *A. P. French*. MIT Publishers (Indian edition by CBS publishers)

Experiments:

Mechanics	**Oscillations**	**Waves**
1. Angular Momentum and Conservation of Angular Momentum	**1.** Coupled Pendulum- Determination of time period for in-phase, out-phase and beat oscillation.	1. Melde's experiment – Investigation of standing waves and studying the variation of velocity as a function of tension in the string.
2. Gyroscope – Calculation of moment of inertia of fly wheel and determination of precession frequency	**2.** Free, damped and forced damped oscillator	2. Fourier Analysis of sound waves from different musical instruments
3. Maxwell's Wheel - Conservation of energy and moment of inertia	**3.** Simple pendulum – for error analysis	
4. Collisions - Conservation of Linear momentum	**4.** Kater's Pendulum – Determination of "g"	

Overall Evaluation Scheme:

Evaluation Component	**Weightage**
Lab quiz	10 %
Data analysis and interpretation (sometimes involve doing experiments at home)	60 %
Comprehensive written exam (online)	30 %

Weekly Evaluation Scheme:

Evaluation Component	**Marks**
Lab quiz (to be completed within the stipulated time period-usually one week time for each experiment)	3
Experimental skill + Data analysis and interpretation (sometimes involve doing experiments at home)	6 +6
Total	15

Laboratory Rules:

1. Students are expected to take their online exams with utmost honesty. Copying is a serious offense as it compromises the fairness of the grading process. Offenders will be dealt with as per academic regulations.
2. Students are expected to submit their reports on-time. No extra time for data file submission.

3. **Make-Up policy**
    1. Permission of the Instructor-in-charge required
    2. Application to be mailed to the Instructor-in-charge.
    3. Make-up session granted only in genuine cases
    4. In case of illness, Medical Certificate from any outside medical practitioners will Be considered for make up.

Consultation Hour: Every lab session will also be the consultation hours

Notices: All notices will be displayed on the course web page in quanta

*********END*********