Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NPHC516	Experimental Physics V	0	0	3	1.5

Course Objective

- To provide hands on experience of computation through programming and simulation of specific physical phenomena;
- To equip the students with various tools of computation and simulation to be useful in advanced studies, research or any other relevant career.

Learning Outcomes

Students will be trained in programming various useful mathematical operations and functions using specially MATLAB. They will also get some experience on operating and running simulation programmes.

Unit No.	Topics To be covered	Lecture Hrs.	Learning Outcome
1	MATLAB program to generate the Fibonacci series	1*3	Student will learn to use the MATLAB for generating the Fibonacci series
2	MATLAB program to verify the number entered is prime number or not	1*3	Student will learn to use the MATLAB for distinguishing prime numbers
3	MATLAB program to find the factorial of a number	1*3	Student will learn to use the MATLAB for finding Factorial of any given number
4	MATLAB program to find the roots of quadratic equation	2*3	Student will learn to use the MATLAB for solving quadratic equation
5	MATLAB program for a simple text-mode calculator	1*3	Student will learn to use the MATLAB as a calculator
6	MATLAB program to calculate e^x by series user defined function.	2*3	Student will learn to use the MATLAB for solving various exponential series
7	MATLAB program to generate data of a mathematical function and store the data in to a file.	1*3	Student will learn to use the MATLAB for generation of mathematical function data
8	MATLAB program for loading data created in an external program	2*3	Student will learn to import the data to other program from MATLAB
9	MATLAB program to create a simple table and a simple plot.	1*3	Student will learn to use the MATLAB for Plotting graph from simple table created
10	MATLAB program to plot trigonometric functions	2*3	Student will learn to use the MATLAB for plotting graphs from varioustrigonometric functions
	* Subject to the availability of other softwares, e.g. ANSYS, COMSOL, the plan of experiments may change.		
Total		**42**	

Reference:

1 Laboratory Manual.

2 Essential MATLAB for Engineers and Scientists, 3rd Ed, by Brian Hahn and Daniel Valentine, Elsevier (Butterworth-Heinemann)