Dr. V.D.Kulkarni,
Dept of Physics
HutatmaRajguruMahavidyalaya,
Rajgurunagar (Pune)

Syllabus Completion Report (Sem-V)

(2023-24)

T.Y.B.Sc. PH 335: Computational Physics

Sr. No.	Online Completed Topics	Dates
01	**1.Concepts of programming and Introduction to C Programming** Definition and Properties of algorithms, Algorithm development,	18/09/2023 20/09/2023
02	Algorithm development, Flow charts- symbols and simple flowcharts	20/09/2023
03	Flow charts and Algorithms for Kinematic equations, Free fall, Equation of state, Factorial of a number.	21/09/2023 25/09/2023
04	Types of programming language: Lower, middle and higher level languages.	26/09/2023
05	Structure of C program, Character set, key words,	27/09/2023
06	Constants andvariables, Variable names,	30/09/2023
07	Data types and their declarations, Symbolic Constants.	02/10/2023
08	Input/output functions: scanf ( ), printf ( ), getchar ( ), putchar ( ), getch ( ), gets ( ), puts ( ).	02/10/2023 03/10/2023
09	Operators and Expressions: Arithmetic Operators, Relational Operators, LogicalOperators,	03/10/2023
10	Assignment Operators, Conditional Operator. Formatted input/output	09/10/2023 09/10/2023
11	Control statements: If, if else, while, do while for loop, nested control structures	10/10/2023

12	(Nested if, nested loops), break, continue, switch- case statement, goto statement.	10/10/2023
13	Use of Library functions: e.g. mathematical, trigonometric, graphics.	
14	**2. Arrays, Pointers and user defined functions** Arrays: 1-D, 2-D and String	11/10/2023 11/10/2023 12/10/2023
15	Examples: Arranging numbers in descending and ascending order,	12/10/2023 13/10/2023
16	Sum of matrices, multiplication of matrices.	14/10/2023
17	Concept of Pointers	
18	User defined functions: Definitions and declaration of function, function prototype.	
19	Passing arguments (Call by value, Call by reference).	
20	Storage Classes: Auto, External, Static, Register variables.	
21	**3. Graphics in C**: Some simple graphic commands	14/10/2023 15/10/2023
	- Line, Circle, Arc, Ellipse, Bar.,Problems	15/10/2023 16/10/2023 16/10/2023 17/10/2023
22	**4. Computational Physics:**	18/10/2023 18/10/2023
23	Iterative methods: Discussion of algorithm and flowcharts and writing C programs for finding	19/10/2023 19/10/2023
24	single root of equation using bi-section method, NewtonRaphson method.	21/10/2023 21/10/2023 25/10/2023
25	Discussion of algorithm and flowcharts and writing C program for trapezoidal rule and Simpson's 1/3rd rule	

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T.Y.B.Sc. PH 333 Classical Mechanics

Sr. No.	Completed Topics	Dates
01	**1. Motion of system of a particles** Introduction –Newton's laws	17/08/2023 18/08/2023
02	Motion of a charged particle in constant electric, magnetic and electromagnetic field	19/082023 21/08/2023
03	General features of motion, equation of orbit, Deduction of Kepler's laws of planetary motion, Orbits of artificial satellite, Problems	21/08/2023 22/08/2023 22/08/2023 23/08/2023
04	System of particles, Centre of mass, Conservation of linear momentum, angular momentum, Energy of system of particles (statements only) Problems	23/08/2023 24/08/2023 27/08/2023 28/08/2023 28/08/2023
09	**2. Motion in Central Force Field** Central force, equivalent one body problem	31/08/2023 01/09/2023 02/09/2023 06/09/2023
10	Motion in central force field	06/09/2023
11	General features of motion, equation of orbit	07/09/2023
12	Deduction of Kepler's laws of planetary motion Orbits of artificial satellite and Problems	08/09/2023
13	**4.Langrangian and Hamiltonian Formulation** Introduction	09/09/2023 11/09/2023
14	Newton's laws,constraints,Holonomic and nonholonomic constraints,Principle of virtual work, D'Alembert's	11/09/2023

	Principle	12/09/2023
		13/09/2023
15	Langrange's equation from D'Alembert's Principle	13/09/2023
	Simple Pendulum,Linear Harmonic Oscillator	14/09/2023
		15/09/2023
16	Hamiltonian and Hamilton's equation	16/09/2023
17	Problems of Hamiltonian	
18	Problems of Langrange's method	
19	Problems of Hamiltonian method	
20	**3.Scattering of Particles** Elastic and inelastic scattering	
21	Properties of Elastic and inelastic scattering	
22	Relation between lab and CM Frame Relation of angles between lab and CM Frame	
23	Inelastic scattering, Differential cross section, impact parameter ,Total differential cross section	
24	Relation of scattering angles between lab and CM Frame, problems	

1) T.Y.B.Sc.:-08 Practicals of one batch completed in First Semester of Academic Year 2023-2024.

2) Projects of T.Y.B.Sc Students.:- Projects of one batch completed in First Semester of academic Year 2023-2024.

3) F.Y.B.Sc.:- 08 Practicals of one batch completed in First Semester of Academic Year 2023-2024.

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