

Teaching Plan (Sem-I)

(2018-19)

T.Y.B.Sc. PH335: Computational Physics

Sr. No.	Topics	Month
01	1. Concepts of programming: Definition and Properties of algorithms, Algorithm development,	01/07/2018 To 15/07/2018
02	Algorithm development, Flow charts- symbols and simple flowcharts	
03	Flow charts and Algorithms for Kinematic equations, Free fall, Equation of state, Factorial of a number.	
04	Types of programming language: Lower, middle and higher level languages.	
05	1. C Programming Structure of C program, Character set, key words,	16/07/2018 To 30/07/2018
06	Constants and variables, Variable names,	
07	Data types and their declarations, Symbolic Constants.	
08	Input/output functions: scanf (), printf (), getchar (), putchar (), getch (), gets (), puts ().	
09	Operators and Expressions: Arithmetic Operators, Relational Operators, Logical Operators,	
10	Assignment Operators, Conditional Operator. Formatted input/output	
11	Control statements: If, if else, while, do while for loop, nested control structures	
12	(nested if, nested loops), break, continue, switch- case statement, goto statement.	
13	Use of Library functions: e.g. mathematical, trigonometric, graphics.	
14	3. Arrays and Pointers in C Arrays: 1-D, 2-D and String	

		1/08/2018 To 20/08/2018
15	Examples: Arranging numbers in descending and ascending order,	
16	Sum of matrices, multiplication of matrices.	
17	Concept of Pointers	
18	4. User Defined Function in C User defined functions: Definitions and declaration of function, function prototype.	21/08/2018 To 07/09/2018
19	Passing arguments (Call by value, Call by reference).	
20	Storage Classes: Auto, External, Static, Register variables.	
21	5. Graphics in C: Some simple graphic commands	
	- Line, Circle, Arc, Ellipse, Bar., Problems	08/09/2018 To 15/09/2018
22	6. Computational Physics: Errors in Computation: Inherent errors in storing numbers due to finite bit representation to use in Computer, Truncation error, round off errors	16/09/2018 to till term end (05/10/2018)
23	Iterative methods: Discussion of algorithm and flowcharts and writing C programs for finding	
24	single root of equation using bi-section method, Newton Raphson method.	
25	Discussion of algorithm and flowcharts and writing C program for trapezoidal rule and Simpson's 1/3rd rule	

Prof. V.D.Kulkarni

Teaching Plan (2018-19)

T.Y.B.Sc. (Sem-II)

Thermodynamics and Statistical Physics (PH-343)

Sr. No.	Topics	Dates
01	Ch-1 - Kinetic Theory of gases Assumptions of Kinetic Theory of gases, Mean free path	23/11/2018 To 12/12/18
02	Transport Phenomena, Viscosity	
03	Thermal conductivity and diffusion	
04	Problems	
05	Ch-2- Maxwell's relations and applications Thermodynamic functions	13/12/18 To 5/1/19
06	Enthalpy, Entropy, Internal Energy, Helmholtz Functions	
07	Maxwell's relations	
08	First and Second TdS equations	
09	Joule – Thomson's effect, Problems	
10	Ch-3- Elementary Concepts of Statistics Probability distributions, functions	10/1/19 To 24/1/19
11	Random Walk Problem and Binomial distribution	
12	Simple Random Problem	
13	Probability distribution for large N	
14	Gaussian Probability distribution and Problems	
15	Ch-4- Statistical distribution of system of particles State of Systems, Ensembles	25/1/19 To 15/2/19
16	Basic Postulates, Probability Calculations	
17	Behavior of density of states	
18	Thermal. Mechanical Interactions, Problems	

Sr. No.	Topics	Dates
19	Ch-5- Statistical Ensembles Micro canonical Ensembles, Canonical Ensembles	16/2/19 To 26/2/19
20	Applications of Canonical Ensembles	
21	Molecules in ideal gas, Mean Values in Canonical Ensembles, Problems	
22	Ch-6-Quantum States Quantum distribution function	27/3/19 To 9/3/19
23	Maxwell – Boltzman Statistics, Bose – Einstein Statistics	
24	Fermi – Dirac Statistics, Comparisions,Problems	

- 1) T.Y.B.Sc.:- Sixteen (16) Practical of **Two** batches will be complete in Academic Year 2018-2019.
- 2) Projects of T.Y.B.Sc Students.:- Projects of Eight (8) T.Y.B.Sc. Students will be complete in Academic Year 2018-2019.

Dr. V.D.Kulkarni

