

**Teaching Plan (Sem-I)**  
**(2019-20)**

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

Sr. No.	Topics	Month
	<b>Admission Process</b>	15/06/2019 To 30/06/2019
01	<b>1. Concepts of programming:</b> Definition and Properties of algorithms, Algorithm development,	01/07/2019 To 13/07/2019
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	<b>1. C Programming</b> Structure of C program, Character set, key words,	15/07/2019 To 10/08/2019
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	<b>3. Arrays and Pointers in C</b> Arrays: 1-D, 2-D and String	
15	Examples: Arranging numbers in descending and ascending order,	11/08/2019 To 20/08/2019
16	Sum of matrices, multiplication of matrices.	
17	Concept of Pointers	
18	Test, Seminar, Tutorial	
19	<b>4. User Defined Function in C</b> User defined functions: Definitions and declaration of function, function prototype.	21/08/2019 To 07/09/2019
20	Passing arguments (Call by value, Call by reference).	
21	Storage Classes: Auto, External, Static, Register variables.	
22	<b>5. Graphics in C:</b> Some simple graphic commands	08/09/2019 To 15/09/2019
	- Line, Circle, Arc, Ellipse, Bar.,Problems	
23	<b>6. Computational Physics:</b> Errors in Computation: Inherent errors in storing numbers due to finite bit representation to use in Computer, Truncation error, round off errors	16/09/2019 to till term end (05/10/2019)
24	Iterative methods: Discussion of algorithm and flowcharts and writing Cprograms for finding	
25	single root of equation using bi-section method, Newton Raphson method.	
26	Discussion of algorithm and flowcharts and writing C program for trapezoidal rule and Simpson's 1/3rd rule	
27	University Question Paper solution	05/10/2019 To 10/10/2019
28	University Exam (Theory)	11/10/2019 To 24/10/2020

**Dr. V.D.Kulkarni**

## Teaching Plan (2019-20)

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

### Thermodynamics and Statistical Physics (PH-343)

Sr. No.	Topics	Dates
01	<b>Ch-1 - Kinetic Theory of gases</b>  Assumptions of Kinetic Theory of gases, Mean free path	22/11/2019  To
02	Transport Phenomena, Viscosity	10/12/19
03	Thermal conductivity and diffusion	
04	Problems	
05	<b>Ch-2- Maxwell's relations and applications</b>  Thermodynamic functions	11/12/19
06	Enthalpy, Entropy, Internal Energy, Helmholtz Functions	To 6/1/20
07	Maxwell's relations	
08	First and Second TdS equations	
09	Joule – Thomson's effect, Problems	
10	<b>Ch-3- Elementary Concepts of Statistics</b>  Probability distributions, functions	7/1/20 To 25/1/20
11	Random Walk Problem and Binomial distribution	
12	Simple Random Problem	
13	Probability distribution for large N	
14	Gaussian Probability distribution and Problems	
15	Test ,Tutorial, Seminar	25/1/20 To 30/1/20
16	<b>Ch-4- Statistical distribution of system of particles</b>  State of Systems, Ensembles	1/2/20 To
17	Basic Postulates, Probability Calculations	14/2/20

18	Behavior of density of states	
19	Thermal. Mechanical Interactions, Problems	
20	<b>Ch-5- Statistical Ensembles</b> Micro canonical Ensembles, Canonical Ensembles	15/2/20 To 25/2/20
21	Applications of Canonical Ensembles	
22	Molecules in ideal gas, Mean Values in Canonical Ensembles, Problems	
23	<b>Ch-6-Quantum States</b> Quantum distribution function	
24	Maxwell – Boltzman Statistics, Bose – Einstein Statistics	26/3/20 To 7/3/20
25	Fermi – Dirac Statistics, Comparisons, Problems	
26	University Question Paper solution	8/3/20 To 10/3/20
27	University Exam (Practical and Theory)	11/03/20 To 1/05/20

- 1) T.Y.B.Sc.:- Sixteen (16) Practical of Two batches will be complete in Academic Year 2019-2020.
- 2) Projects of T.Y.B.Sc Students.:- Projects of Nine (9) T.Y.B.Sc. Students will be complete in Academic Year 2019-2020.

**Dr. V.D.Kulkarni**

