## Teaching Plan (2016-17)

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

### PH 333 Classical Mechanics

Sr. No.	Topics	Dates
01	<b>1. Mechanics of system of particles</b> Introduction –Newton's laws	
02	Applications of Newton's laws of motionProjectile motion in various medium,	
03	Rocket motion,	01/07/2016 To
04	Motion of a charged particle in constant electric, magnetic and electromagnetic field.	15/07/2016
05	General features of motion, equation of orbit, Deduction of Kepler's laws of planetary motion, Orbits of artificial satellite, Problems.	
06	System of particles, Centre of mass, Conservation of linear momentum, angular momentum,	
07	Energy of system of particles (statements only) Problems	

Prof. V.D.Kulkarni

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

### Syllabus Completion Report (2016-17)

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

#### **PH335: Computational Physics**

Sr. No.	Topics	Dates
01	<b>1. Concepts of programming:</b> Definition and Properties of algorithms, Algorithm development,	
02	Algorithm development, Flow charts- symbols and simple flowcharts	16/07/2016 To
03	Flow charts and Algorithms for Kinematic equations, Free fall, Equation of state, Factorial of a number.	25/07/2016
04	Types of programming language: Lower, middle and higher level languages.	
05	<b>C Programming</b> Structure of C program, Character set, key words,	
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 ( ).	26/07/2016
09	Operators and Expressions: Arithmetic Operators, Relational Operators, LogicalOperators,	To 25/08/2016,
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	26/08/2016, To 31/08/2016,
15	Examples: Arranging numbers in descending and ascending order,	,
16	Sum of matrices, multiplication of matrices.	
17	Concept of Pointers	
18	<b>4. User Defined Function in C</b> User defined functions: Definitions and declaration of function, function prototype.	01/09/2016 To
19	Passing arguments (Call by value, Call by reference).	10/09/2016
20	Storage Classes: Auto, External, Static, Register variables.	
21	5. Graphics in C: Some simple graphic commands	11/09/2016 To
	- Line, Circle, Arc, Ellipse, Bar., Problems	17/09/2016
22	6. Computational Physics: Errors in Computation: Inherent errors in storing numbers due to finite bit representation to use inComputer, Truncation error, round off errors	
23	Iterative methods: Discussion of algorithm and flowcharts and writing Cprograms for finding	19/09/2016 To,
24	single root of equation using Bi-section method, Newton Raphson method.	10/10/2016
25	Discussion of algorithm and flowcharts and writing C program for Trapezoidalrule and Simpson's 1/3rd rule	
26	Problems and Paper solutions	

.

Prof. V.D.Kulkarni

## Teaching Plan (2016-17)

### 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	1/12/2016 To
02	Transport Phenomena, Viscosity	10/12/10
03	Thermal conductivity and diffusion	4
04	Problems	
05	Ch-2- Maxwell's relations and applications	
06	Thermodynamic functions Enthalpy, Entropy, Internal Energy, Helmholtz Functions	11/12/16 To
07	Maxwell's relations	31/12/16
08	First and Second TdS equations	
09	Joule – Thomson's effect,	
	Problems	
10	Ch-3- Elementary Concepts of Statistics	
11	Probability distributions, functions Random Walk Problem and	1/1/17
	Bionomial distribution	
12	Simple Random Problem	25/1/17
13	Probability distribution for large N	_
14	Gaussian Probability distribution	
	and Problems	
15	Ch-4- Statistical distribution of system of	
	particles	27/1/17
		To
16	State of Systems, Ensembles	15/2/17
10	Basic Postulates, Probability Coloulations	
17	Rehavior of density of states	-
1/	Thermal Mechanical Interactions	4
10	Problems	

Sr. No.	Topics	Dates
19	Ch-5- Statistical Ensembles	
	Micro canonical Ensembles, Canonical Ensembles	17/2/17 To
20	Applications of Canonical Ensembles	21/2/17
21	Molecules in ideal gas, Mean Values in Canonical Ensembles,	
	Problems	
22	Ch-6-Quantum States	23/2/17
	Quantum distribution function	То
23	Maxwell – Boltzman Statistics,	10/03/17
	Bose – Einstein Statistics	
24	Fermi – Dirac Statistics, Comparisions, Problems	

- **1)** T.Y.B.Sc.:- Sixteen (16) Practical of **Three** batches will be complete in Academic Year 2016-2017.
- 2) Projects of T.Y.B.Sc Students.:- Projects of Five (5) Students of T.Y.B.Sc. will be complete in Academic Year 2016-2017.

Prof. V.D.Kulkarni