



Department:PHYSICS SF Batch:BSC PHY SF 2021 Semester:Course Completed

Subject Planner Report (Proposed) Of CC20UPHY5B06 Computational Physics

Sl.no	Topic Name	Description	Date	Hour	Module	Mode of Instruction	Teaching Pedagogy
1	, a body dropped into a highly viscous medium, two dimensional projectile motion and radioactive deca	programming	25-09-2023	2	4	Lecture	Experiential learning via Google colab
2	motions of a freely falling body	programming	21-09-2023	1	4	Lecture	experiential learning via google colab
3	Theory, and graphical simulation by programming	programming	18-09-2023	2	4	Lecture	experiential learning via google colab
4	-Significance of Computer in numerical methods- Applications of Euler's method	programming	15-09-2023	1	4	Lecture	participative learning via python
5	Formulation: From analytical to numerical methods -	programming	14-09-2023	1	4	Lecture	experiential learning via google colab
6	-Taylor's Series expansion of Sin(x) and Cos(x).	programming	24-08-2023	1	3	Lecture	participative learning via python
7	Runge- Kutta method (Second order)	programming	21-08-2023	2	3	Lecture	experiential learning via google colab
8	Solution of differential equations: Euler's method,	programming	18-08-2023	1	3	Lecture	participative learning via python
9	Numerical integration by Trapezoidal and Simpson's (1/3) method	programming	17-08-2023	1	3	Lecture	experiential learning via google colab
10	Numerical integration by Trapezoidal and Simpson's (1/3) method	programming	14-08-2023	2	3	Lecture	participative learning via python
11	Newton Cote's quadrature formula-	programming	11-08-2023	1	3	Lecture	experiential learning via google colab

12	Newton-Raphson method	programming	10-08-2023	1	3	Lecture	experiential learning via google colab
13	Solution of algebraic equations: Bisection method,	programming	08-08-2023	4	3	Lecture	participative learning via python
14	First and second derivative by Numerical differentiation	programming	07-08-2023	2	3	Lecture	experiential learning via google colab
15	First and second derivative by Numerical differentiation	programming	04-08-2023	1	3	Lecture	experiential learning via google colab
16	, Newton's forward difference interpolation formula, difference table	programming	03-08-2023	1	3	Lecture	participative learning via python
17	, Newton's forward difference interpolation formula, difference table	programming	31-07-2023	2	3	Lecture	experiential learning via google colab
18	Interpolation: Finite difference operator	programming	28-07-2023	1	3	Lecture	experiential learning via google colab
19	Curve Fitting: Principle of least squares, Least square fitting of a straight line -	programming	27-07-2023	1	3	Lecture	participative learning via python
20	Introduction to numerical methods, Comparison between analytical and numerical methods	programming	24-07-2023	2	3	Lecture	experiential learning via google colab
21	- Plotting of functions $\sin(x)$, $\cos(x)$, $\exp(x)$, $\sin^2(x)$, $\sin(x^2)$	programming	21-07-2023	1	2	Lecture	participative learning via python
22	multiple plots, polar plots, labeling, scaling of axes and coloring plots	programming	20-07-2023	1	2	Lecture	experiential learning via google colab
23	Matplotlib module: Introduction, plot(), show() functions, syntax for plotting graphs ,	programming	17-07-2023	2	2	Lecture	experiential learning via google colab
24	, matrix multiplication, inversion.	programming	14-07-2023	1	2	Lecture	experiential learning via google colab

25	various array operations,	programming	13-07-2023	1	2	Lecture	participative learning via python
26	Numpy module: Introduction, creation of arrays and matrices	programming	10-07-2023	2	2	Lecture	experiential learning via google colab
27	- File input and file output-Pickling.	programming	07-07-2023	1	1	Lecture	participative learning via python
28	- user defined functions- Modules	programming	06-07-2023	1	1	Lecture	experiential learning via google colab
29	while, for, break, continue)	programming	03-07-2023	2	1	Lecture	experiential learning via google colab
30	while, for, break, continue)	programming	30-06-2023	1	1	Lecture	participative learning via python
31	various control and looping statements: (if, if..else, if..elif	programming	29-06-2023	1	1	Lecture	experiential learning via google colab
32	various control and looping statements: (if, if..else, if..elif	programming	26-06-2023	2	1	Lecture	participative learning via python
33	Tuples and Dictionaries,	programming	23-06-2023	1	1	Lecture	experiential learning via google colab
34	sets, set operations (set, add, remove, in, not in, union, intersection, symmetric difference)	programming	22-06-2023	1	1	Lecture	experiential learning via google colab
35	, Lists, list operations (len, append, insert, del, remove, reverse, sort, +, *, max, min, count, in, not in, sum),	programming	19-06-2023	2	1	Lecture	participative learning via python
36	String operations	programming	16-06-2023	1	1	Lecture	participative learning via python
37	Variables, operators, expressions and statements	programming	15-06-2023	1	1	Lecture	participative learning via python
38	- print command, formatted printing- open and write function -	programming	12-06-2023	2	1	Lecture	experiential learning via google colab

39	Writing and execution of programs -various data types in Python- Reading keyboard input: The raw_input function and input function	programming	09-06-2023	1	1	Lecture	experiential learning via google colab
40	- Introduction to Python language- Advantages and unique features of Python language - Interactive mode and script mode	programming	08-06-2023	1	1	Lecture	experiential learning via google colab
41	Introduction to algorithm, flowchart and high level Computer programming languages Compilers- Interpreters	programming	05-06-2023	2	1	Lecture	experiential learning via google colab
Signature of Faculty Signature of HOD Signature of Principal							



CHRIST
COLLEGE (AUTONOMOUS)
IRINJALAKUDA, KERALA

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Department:PHYSICS SF Batch:BSC PHY SF 2021 Semester:Course Completed

Handling faculty:- Anjali Joby

Subject Planner Report (Actual) Of CC20UPHY5B06 Computational Physics

Sl.No	Topic Name	Date	Hour	Module	Teaching Pedagogy	Portion Status	Subject Strength	Students Attended
1	, a body dropped into a highly viscous medium, two dimensional projectile motion and radioactive deca	25-09-23	2	4	Experiential learning via Google colab	Fully covered	28	26
2	motions of a freely falling body	21-09-23	1	4	experiential learning via google colab	Fully covered	28	27
3	Theory, and graphical simulation by programming	18-09-23	2	4	experiential learning via google colab	Fully covered	28	28
4	-Significance of Computer in numerical methods- Applications of Euler's method	15-09-23	1	4	participative learning via python	Fully covered	28	26
5	Formulation: From analytical to numerical methods -	14-09-23	1	4	experiential learning via google colab	Fully covered	28	24
6	-Taylor's Series expansion of Sin(x) and Cos(x).	24-08-23	1	3	participative learning via python	Fully covered	28	23
7	Runge- Kutta method (Second order)	21-08-23	2	3	experiential learning via google colab	Fully covered	28	22
8	Solution of differential equations: Euler's method,	18-08-23	1	3	participative learning via python	Fully covered	28	24
9	Numerical integration by Trapezoidal and Simpson's (1/3) method	17-08-23	1	3	experiential learning via google colab	Fully covered	28	22



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10	Numerical integration by Trapezoidal and Simpson's (1/3) method	14-08-23	2	3	participative learning via python	Fully covered	28	26
11	Newton Cote's quadrature formula-	11-08-23	1	3	experiential learning via google colab	Fully covered	28	25
12	Newton-Raphson method	10-08-23	1	3	experiential learning via google colab	Fully covered	28	20
13	Solution of algebraic equations: Bisection method,	08-08-23	4	3	participative learning via python	Fully covered	28	24
14	First and second derivative by Numerical differentiation	07-08-23	2	3	experiential learning via google colab	Fully covered	28	23
15	First and second derivative by Numerical differentiation	04-08-23	1	3	experiential learning via google colab	Fully covered	28	21
16	, Newton's forward difference interpolation formula, difference table	03-08-23	1	3	participative learning via python	Fully covered	28	22
17	, Newton's forward difference interpolation formula, difference table	31-07-23	2	3	experiential learning via google colab	Fully covered	28	23
18	Interpolation: Finite difference operator	28-07-23	1	3	experiential learning via google colab	Fully covered	28	24
19	Curve Fitting: Principle of	27-07-23	1	3	participative learning via	Fully covered	28	15



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Sl.No	Topic Name	Date	Hour	Module	Teaching Pedagogy	Portion Status	Subject Strength	Students Attended
	least squares, Least square fitting of a straight line -				python			
20	Introduction to numerical methods, Comparison between analytical and numerical methods	24-07-23	2	3	experiential learning via google colab	Fully covered	28	25
21	- Plotting of functions – sin(x), cos(x), exp(x), sin ² (x), sin(x ²)	21-07-23	1	2	participative learning via python	Fully covered	28	24
22	multiple plots, polar plots, labeling, scaling of axes and coloring plots	20-07-23	1	2	experiential learning via google colab	Fully covered	28	27
23	Matplotlib module: Introduction, plot(), show() functions, syntax for plotting graphs ,	17-07-23	2	2	experiential learning via google colab	Fully covered	28	26
24	, matrix multiplication, inversion.	14-07-23	1	2	experiential learning via google colab	Fully covered	28	21
25	various array operations,	13-07-23	1	2	participative learning via python	Fully covered	28	21
26	Numpy module: Introduction, creation of arrays and matrices	10-07-23	2	2	experiential learning via google colab	Fully covered	28	18
27	- File input and file output-Pickling.	07-07-23	1	1	participative learning via python	Fully covered	28	27



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28	- user defined functions- Modules	06-07-23	1	1	experiential learning via google colab	Fully covered	28	26
29	while, for, break, continue)	03-07-23	2	1	experiential learning via google colab	Fully covered	28	21
30	while, for, break, continue)	30-06-23	1	1	participative learning via python	Fully covered	28	28
31	various control and looping statements: (if, if..else, if..elif	29-06-23	1	1	experiential learning via google colab	Fully covered	28	28
32	various control and looping statements: (if, if..else, if..elif	26-06-23	2	1	participative learning via python	Fully covered	28	28
33	Tuples and Dictionaries,	23-06-23	1	1	experiential learning via google colab	Fully covered	28	26
34	sets, set operations (set, add, remove, in, not in, union, intersection, symmetric difference)	22-06-23	1	1	experiential learning via google colab	Fully covered	28	21
35	, Lists, list operations (len, append, insert, del, remove, reverse, sort, +, *, max, min, count, in, not in, sum),	19-06-23	2	1	participative learning via python	Fully covered	28	27
36	String operations	16-06-23	1	1	participative learning via python	Fully covered	28	23



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37	Variables, operators, expressions and statements	15-06-23	1	1	participative learning via python	Fully covered	28	27
38	- print command, formatted printing- open and write function -	12-06-23	2	1	experiential learning via google colab	Fully covered	28	27
39	Writing and execution of programs - various data types in Python- Reading keyboard input: The raw_input function and input function	09-06-23	1	1	experiential learning via google colab	Partially covered	28	26
40	Writing and execution of programs - various data types in Python- Reading keyboard input: The raw_input function and input function	09-06-23	1	1	experiential learning via google colab	Fully covered	28	26
41	- Introduction to Python language- Advantages and unique features of Python language - Interactive mode and script mode	08-06-23	1	1	experiential learning via google colab	Fully covered	28	27
42	Introduction to algorithm,	05-06-23	2	1	experiential learning via	Fully covered	28	23



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	flowchart and high level Computer programming languages Compilers- Interpreters				google colab			

Signature of HOD

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