I – Academic Planner

A. Teaching Plan (Year : __2020-2021_ Semester: Odd)

Teacher's Name ___Pranav Kumar_____ Department____Physics_____

Online classes

S. No.	UPC	Paper Name	Core/AECC /GE/SEC	Topic/Unit	Start Date	EndDate
1	32227506	Astronomy and Astrophysics	DSE	**Unit-1 (Part 1) :** 1. **Astronomical Scales**	10.08.2020	27.082020
2	32227506	Astronomy and Astrophysics	DSE	**Unit2: 1. Astronomical techniques** **2. Physical principles**	28.08.2020	10.09.2020
3	32227506	Astronomy and Astrophysics	DSE	**Unit3: 1. The sun** **2. The solar family** **3. Stellar spectra and classification** **Structure**	11.09.2020	07.10.2020
4	32227506	Astronomy and Astrophysics	DSE	**Unit4: The milky way**	08.10.2020	20.10.2020
5	32227506	Astronomy and Astrophysics	DSE	**Unit5: Galaxies**	21.10.2020	28.10.2020
6	32227506	Astronomy and Astrophysics	DSE	**Unit 6: Large scale structure & expanding universe**	29.10.2020	06.11.2020
7	32227506	Astronomy and Astrophysics	DSE	**Unit 1(Part2):** Basic Concept of Positional Astronomy	07.11.2020	28.11.2020
8	**32221301**	MATHEMATICAL PHYSICS-II (Practical)	Core	Introduction to Numerical computation software Scilab	14.08.2020	04.09.2020
9	**32221301**	MATHEMATICAL PHYSICS-II (Practical)	Core	Interpolation by Newton Gregory Forward and Backward difference formula, Error estimation of linear interpolation. Lagrange Interpolation.	05.09.2020	18.09.2020
10	**32221301**	MATHEMATICAL PHYSICS-II (Practical)	Core	Numerical Integration	19.09.2020	26.09.2020
11	**32221301**	MATHEMATICAL PHYSICS-II (Practical)	Core	Solution of Linear system of equations: Solve system of linear equations using Gauss elimination method and Gauss Seidal method. Inverse of a	03.10.2020	23.10.2020

				matrix		
12	**32221301**	MATHEMATICAL PHYSICS-II (Practical)	Core	Generation of Special functions using user defined functions and compare with Scilab built in functions	24.10.2020	06.11.2020
13	**32221301**	MATHEMATICAL PHYSICS-II (Practical)	Core	Solution of Ordinary Differential Equations (ODE) First order Differential equation Euler, modified Euler and Runge-Kutta (RK) second and fourth order methods	07.11.2020	28.11.2020
14	32221501	QUANTUM MECHANICS AND APPLICATIONS (Practical)	Core	Problem1: Solve the s-wave Schrodinger equation for the ground state and the first excited state of the hydrogen atom Numerical Method: Finite Difference Method to solve Boundary Value Problem Probability Density	10.08.2020	21.09.2020
15	32221501	QUANTUM MECHANICS AND APPLICATIONS (Practical)	Core	Problem2: Solve the s-wave radial Schrodinger equation for an atom for the screened coulomb potential. Shooting method.	25.09.2020	05.10.2020
16	32221501	QUANTUM MECHANICS AND APPLICATIONS (Practical)	Core	Problem3: Solve the s-wave radial Schrodinger equation for a particle of mass m for the harmonic and anharmonic oscillator potential. Also show that for large n the system approaches to classical behavior.	09.10.2020	16.10.2020
17	32221501	QUANTUM MECHANICS AND APPLICATIONS (Practical)	Core	Problem4: Solve the s-wave radial Schrodinger equation for the vibrations of hydrogen molecule using Morse potential. Plot the potential and Wave function for few energy levels.	17.10.2020	31.10.2020
18	32227502	Advanced Mathematical Physics LAB	Core	Linear algebra: Multiplication of two 3 x 3 matrices, Eigenvalue and eigenvectors, Determination of the principal axes of moment of inertia through diagonalization. Estimation of ground state energy and wave function of a quantum system.	02.11.2020	28.11.2020

B. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Teachers

Event Topic		**ENHANCING PSYCHOLOGICAL SKILLS FOR TEACHING & PRACTICE**			
Type / Nature (FDP/Webinar/Workshop etc.)		**FDP**			
Organizing In-charge		**Teaching Learning Centre, Ramanujan College**			
Details regarding invited Resource Person					
Nature of Participation (e.g. Invited Speaker, Participant etc.)		**Participant**			
Date/s	**15 to 29 September 2020.**	**Timing/s**		**Mode**	**Online**

Event Topic		**One Week FDP on LibreOfficeSuite**			
Type / Nature (FDP/Webinar/Workshop etc.)		**FDP**			
Organizing In-charge		**Internal Quality Assurance Cell, Anugrah Narayan Singh College, Barh in association with the Spoken Tutorial, IIT Bombay.**			
Details regarding invited Resource Person					
Nature of Participation (e.g. Invited Speaker, Participant etc.)		**Resource Person**			
Date/s	**17 to 23 August 2020.**	**Timing/s**		**Mode**	**Online**

C. Internal Assessment: House Exam (Test/Presentation etc.)&Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
1	32227506	Astronomy and Astrophysics	Computational Assignment (Light Curve, SDSS_0266 data)	16-11-2020	8-12-2020
2	32227506	Astronomy and Astrophysics	Assignment	28-11-2020	6-12-2020, 7-12-2020
3	32227506	Astronomy	Presentation	16-11-2020	8-12-2020

		and Astrophysics			

***Marks of the Internal Assessment to be submitted to the College 15 days before the last working day of every semester**

D. Organization of Department/College Society Meetings by Staff Advisor/Convener

Department/Society	Meeting Date	Purpose

E. College Functions

College Function	Function Date	Role to be played
Orientation Program	17th Nov 2020	Introduction and Guidance to 1st year students

For Departments

A. Department activities for students – Election/Freshers/Welcome/Farewell/Department Seminars/Society functions

Event	Date	Timing	Venue	Event In-charge / Supervisor
Department Election				
Fresher's Welcome				
Farewell				
Department Society functions				
Department Seminars				
Any Other ( )				

B. Outstation Field Visit for Students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

C. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Department

Event Topic	
Type / Nature (FDP/Webinar/Workshop etc.)	
Organizing In-charge	

Details regarding invited Resource Person					
Nature of Participation (e.g. Invited Speaker, Participant etc.)					
Date/s		**Timing/s**		**Mode**	

I – Academic Planner

A. Teaching Plan (Year : __2020-2021_ Semester: Even)

Teacher's Name ___Pranav Kumar_____ Department____Physics_____

Mid-Semester Break	24th March, 2021 (Wednesday) to 30th March, 2021 (Tuesday) (Note :29-3-2021 =Holi)

Online Mode

S. No.	UPC	Paper Name	Core/AECC /GE/SEC	Topic/Unit	Start Date	EndDate
1	32227626	Classical Dynamics	DSE	**Unit-1: Classical Mechanics of Point Particles (online mode)**	02.01.2021	13.02.2021
2	32227626	Classical Dynamics	DSE	**Unit2: Small Amplitude Oscillations (Online mode)**	15.02.2021	06.03.2021
3	32227626	Classical Dynamics	DSE	**Unit3: Special Theory of Relativity** (online mode)	08.03.2021	12.04.2021
4	32227626	Classical Dynamics	DSE	**Unit4: Fluid Dynamics** (online mode)	13.04.2021	26.04.2021
5	32221602	STATISTICAL MECHANICS (Practical)	CORE	Problem 3 of syllabus **Online**	02.01.2021	08.02.2021
6	32221602	STATISTICAL MECHANICS (Practical)	CORE	Problem 4 of syllabus online	12.02.2021	06.03.2021
7	32221602	STATISTICAL MECHANICS (Practical)	CORE	Problem 5 of syllabus online	15.03.2021	22.03.2021
8	32221602	STATISTICAL MECHANICS (Practical)	CORE	Problem 2 of syllabus Online	02.04.2021	17.04.2021
9	32221602	STATISTICAL MECHANICS (Practical)	CORE	Problem 1 of syllabus online	19.04.2021	26.04.2021

10	32221401	MATHEMATICAL PHYSICS-III	CORE	Problem 1: Boundary Value Problem : Finite Difference Method, Shooting Method; 2nd order differential equation using Euler, RK2 and RK4 methods , SHM	02.01.2021	13.02.2021
11	32221401	MATHEMATICAL PHYSICS-III	CORE	Problem 2,3: Gauss Quadrature Integration Method: Show the orthogonality relation of special function like Legendre Polynomial, Complex integration. Verify shift theorem of Dirac Delta function using Gaussian distribution as Dirac Delta function in the limit of Standard deviation tends to zero. Also through Gauss quadrature Method.	19.02.2021	02.04.2021
12	32221401	MATHEMATICAL PHYSICS-III	CORE	Problem 4: Verify and plot Fourier expansion of period functions 1) Square wave 2) Saw tooth wave 3) Triangular wave 4) Any other periodic function	03.04.2021	17.04.2021
13	32221401	MATHEMATICAL PHYSICS-III	CORE	Problem 5: For any given observed data points, fit a best fit curve using least square method. Also calculate the error between observed data and fitted curve. Also plot the error bar in the curve. (Online)	20.04.2021	26.04.2021
14						
15						
16						

B. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted by Teachers

Event Topic	**Faculty in Universities/Colleges/Institutes of Higher Education**
Type / Nature (FDP/Webinar/Workshop etc.)	**4-Week Induction/Orientation Programme**
Organizing In-charge	**Teaching Learning Centre, Ramanujan College**

Details regarding invited Resource Person					
Nature of Participation (e.g. Invited Speaker, Participant etc.)		**Participant**			
Date/s	**February 11 - March 13, 2021**	**Timing/s**		**Mode**	**Online**

C. Internal Assessment: House Exam (Test/Presentation etc.)&Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining
1	32227626	Classical Dynamics	Complete Syllabus	02-05-2021; 24-05-2021	29-05-2021

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Department/Society	Meeting Date	Purpose

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College Function	Function Date	Role to be played