

Deshmukh V.B.  
Department of Physics  
HRM Rajgurunagar  
24/02/2022

To,  
The principal,  
Hutatma Rajguru Mahavidyalaya  
Rajgurunagar

Subject- Academic work report of 1<sup>st</sup> semester in year 2021-22

Academic report includes teaching report, research paper publication, research paper presented in conference and report of committees is shown as follows.

**1. Teaching report -UG**

Sr. No.	Class	Subject	Total No. of students	Online Lecture	Offline Lecture	Total
1	FYBSc	Physics principles and applications	109	22	19	41
2	SYBSc	Practicals Batch A1 and A2	28	01	07	08
3	TYBSc	Atomic and Molecular Physics	05	08	28	36
4	TYBSc	Physics Laboratory skill	05	03	26	29

**2. FYBSc. Physics II (Physics principles and applications)-41 Lectures**

Month	Period	Chapter	Topic
September 2021	6	<b>Physics of Atoms</b>	The concept of atom (Atomic Models: Thompson and Rutherford) Atomic Spectra Bohr Theory Hydrogen atom Spectra Frank Hertz experiment
October 2021	6	<b>LASERS</b>	Absorption, Spontaneous Emission, and Stimulated Emission, Population Inversion and Laser Action, Applications of Lasers Problem solved , Assignment
November 2021	12	<b>Physics of Molecules</b>	Bonding Mechanisms: A Survey Ionic Bonds Covalent Bonds Van der Waals Bonds The Hydrogen Bond Metallic Bond, Variation of potential energy with inter-atomic distance, Concept of Rotational and vibration energy levels of diatomic molecule Problem solved. Assignment





December 2021	8	Sources of Electromagnetic Waves	Historical Perspective of Electromagnetic Waves Production of electromagnetic waves : Hertz experiment Electromagnetic spectrum Planck hypothesis of photons (Concept only) Sources of electromagnetic waves: Radio waves, Microwaves, Infrared, Visible light, Ultraviolet, X-rays, Gamma rays Problem solved Assignment
January 2022	10	Applications of Electromagnetic Waves	Microwave oven RADAR Pyro- electric thermometer X-ray radiography and CT Scan, applications in medical field Solar cell Revision

#### TYBSc Physics IV (Atomic and Molecular Physics)-36 Lectures

Month	Period	Chapter	Topic
September 2021	6	Atomic structure	Revision of various atomic models, Vector atom model, Pauli's Exclusion Principles and electron configurations, Quantum states, and Spectral notations of quantum states
October 2021	12	One and Two valence electron systems	Spin-Orbit Interaction (Single valence electron atom), Energy levels of Na atom, selection rules, spectra of sodium atom, sodium Doublet. Spectral terms of two electron atoms, terms for equivalent electrons, L-S and JJ coupling schemes. Singlet-Triplet separation for interaction energy of L-S coupling. Lande Interval rule, spectra of Helium atom
November 2021	4	Zeeman Effect	Experimental arrangement Normal and anomalous Zeeman Effect, Stark effect( Qualitative Discussion), Applications of Zeeman Effects
December 2021	8	Molecular spectroscopy	Introduction to Molecular Spectra and its types Rotational energy levels, Rotational spectra of diatomic molecule, Vibration energy levels Rotational and Vibration spectra Electronic spectra of molecules, Applications of UV-Vis spectroscopy Problems
January 2022	6	Raman spectroscopy	History of Raman effect Classical theory of Raman Effect. Molecular Polarizability, Quantum theory of Raman Effect
February 2022			Experimental set up for Raman Effect Applications of Raman spectroscopy





**TYBSc Skill based course II (Physics Laboratory skill)-18 Lectures+ 6 Activity**

Month	Period	Chapter	Topic
September 2021	4	<b>Basic of Measurement</b>	Principle and working of digital meters. Comparison of analog & digital instruments. Characteristics of a digital meter. <b>Multimeter</b> Block diagram and working of a digital multimeter. Principles of measurement of dc voltage and dc current, ac voltage, ac current and resistance. Specifications of a multimeter and their significance
October 2021	4	<b>Electronic Voltmeter</b>	Principles of voltmeter, Construction (block diagram only). Specifications of an electronic Voltmeter and their significance. AC Voltmeter and its types, Block diagram ac Milli Voltmeter, Specifications and their significance
November 2021	5	<b>Cathode Ray Oscilloscope</b>	Block diagram of basic CRO. Principle and working of CRO Use of CRO for the measurement of voltage (dc and ac) frequency, time period. Special features of dual trace oscilloscope. Introduction to digital oscilloscope, Block diagram and principle and working
December 2021	2	<b>Signal Generators and Analysis Instruments</b>	Block diagram, explanation and specifications of low frequency signal generators. Pulse generator, and function generator
January 2022	3	<b>Impedance Bridges and Q-Meters</b>	Block diagram of bridge. Working principles of basic (balancing type) RLC bridge. Specifications of RLC bridge. Block diagram & working principles of a Q- Meter. Digital LCR bridges
December 2021- February 2022	12	<b>Activity</b>	Use of Digital multimeter, Measurement of R, L and C by Q-meter To observe the loading effect of a multimeter while measuring voltage across a low resistance and high resistance. To observe the limitations of a multimeter for measuring high frequency voltage and currents. Measurement of voltage, frequency, time period and phase angle using CRO. Measurement of rise, fall and delay times using a CRO

3. **E-content-** I have uploaded e-notes for Fybse (Physics paper II) and Tybse. (Physics IV) and required MCQ as well as information about Sybse Practical.





#### 4. Research paper published

Sr. No.	Article Title	Journal Name	ISBN/ISSN	UGC-Care listed	Year
1	Analytical detection of paraoxon using acetylcholinesterase as an enzyme on polyaniline/FeCl <sub>3</sub> composite film by potentiostatic method	Journal of Scientific Research	0447-9483	Yes	2021
2	Fabrication of acetylcholinesterase sensor based on polyaniline/K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> composite film modified electrode for amperometric detection of carbaryl	Journal of Advances in Applied Sciences and Technology	2393-8188	Yes	2022

#### 5. Research paper presented in conference

Sr. No.	Article Title	Level	Seminar Name	Venue	Dates
1	Analytical detection of paraoxon using acetylcholinesterase as an enzyme on polyaniline/FeCl <sub>3</sub> composite film by potentiostatic method"	International conference	International Conference on Fundamental and Applied Sciences (ICFAS 2021)	Hazarimal Somani College of Arts and Science, and Jayaramdas Patel College of Commerce and Management Studies, K. M. Munshi Marg, Chowpatty, Mumbai	24/3/2021-26/3/2021
2	Electrochemical synthesis and characterization of Conducting polymer composite film for various dopants	International E-Conference	Advanced Materials in Innovative Technology" (ICAMIT-2022)	Milliya Arts, Science and Management Science College, Beed (MS) India	11/01/2022



*Prof. V. B. Deshmukh*

**6. Time-Table :- Total workload -20**

Sr. No.	Time	Mon	Tue	Wed	Thu	Fri	Sat
Theory							
1	8.20 to 9.10 am	-	-	-	-	-	-
2	9.20 to 10.10 am	TY	TY	TY	-	-	-
3	10.10 to 11.00 am	-	-	-	FY	FY	FY
4	11.00 to 11.50 am	-	-	-	TY	TY	TY
Practicals							
5	12.30 onwards	SY	TY Project	SY	-	-	-



*Wlehrs*  
Prof. V.B. Deshmukh



Send



Questions

Responses

194

Settings

# K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar, Tal-Khed ,Dist-Pune, 410505

1 Feedback on Design & Review of Syllabus by Student

Name of the Student \*

Short answer text

Contact No. \*

Short answer text





Send



Questions

Responses

194

Settings

1) Does the syllabus reflect current content?

- ☐ Yes
- ☐ No
- ☐ Maybe

2) Whether the Content of the course is heavy?

- ☐ Yes
- ☐ No
- ☐ Maybe



☒ Multiple choice

×

×

×



# K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar,Tal-Khed,Dist-Pune, 410505

2 Feedback from students about Teaching and Curriculum

Dear Students,This form has been designed to seek feedback from you to strengthen the quality of teaching-learning environment and to improve the performance of the teachers. The information provided by you will be kept confidential.

Name of the Student \*

Short answer text





2 Feedback from students about 1  



Send



Questions

Responses

294

Settings

1) The entire syllabus is completed in time \*

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Strongly Disagree
- ☐ Disagree



2) The teachers are punctual and regular in taking lectures and practical's \*

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral





3 Feedback from students about (📁 ☆)



Send



S

Questions

Responses

355

Settings

## K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar,Tal-Khed,Dist-Pune, 410505

3 Feedback from students about College

Dear Students,

This form has been designed to seek feedback from you to strengthen the quality of teaching-learning environment, to provide best possible facilities and modern infrastructure. The information provided by you will be kept confidential.

Name of the student \*

Short answer text







Send



Questions

Responses

355

Settings

1) The office staff in the college is cooperative and helpful \*

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

2) The library staff is cooperative and helpful \*

- ☐ Strongly agree
- ☐ Agree



# K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar,Tal-Khed,Dist-Pune, 410505

4 Feedback From Teachers

Dear Teachers,

This form is intended to collect information relating to your satisfaction towards the curriculum, teaching, learning, evaluation and infrastructure. The information provided by you will be kept confidential and will be used as important feedback for quality improvement of the programme of studies and the institution.

Name



Short answer

Short answer text





Questions Responses 32 Settings

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree

3) The books/journals etc. prescribed / listed as reference materials are relevant, updated and \* cover the entire syllabi

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral

# K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar,Tal-Khed,Dist-Pune, 410505

5 Feedback on design & Review of Syllabus by Teachers

Dear Teachers,

This form is intended to collect information relating to your satisfaction towards the Design ,curriculum of syllabus . The information provided by you will be kept confidential and will be used as important feedback for quality improvement of the programme of studies and the institution.

Name of the Teacher \*

Short answer text



Questions Responses 37 Settings

1) Does the syllabus reflect current content? \*

☐ Yes

☐ No

2) Are there any topics that should be dropped from the course? \*

☐ Yes

☐ No

3) Are there any topics that should be added to the course? \*

☐ Yes



## K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar,Tal-Khed,Dist-Pune, 410505

6 Feedback on Design & Review of Syllabus by Alumni

Dear Alumnus,

Thank you for considering K. T. S. P. Mandal's, Hutatma Rajguru Mahavidyalaya, Rajgurunagar, Pune 410505 as a source of your graduate / Post-graduate. This form has been designed to seek suggestions or comments from you about the Design & Review of Syllabus .

Name of the Alumni \*

Short answer text

Questions Responses 34 Settings

1 Does the syllabus reflect current content?

- ☐ Yes
- ☐ No
- ☐ Maybe

2 Whether the Content of the course is heavy?

- ☐ Yes
- ☐ No
- ☐ Maybe

## K.T.S.P Mandal's Hutatma Rajguru Mahavidyalaya, Rajgurunagar,Tal-Khed,Dist-Pune, 410505

7 Feedback from Alumni

Dear Alumnus,

Thank you for considering K. T. S. P.Mandal's, Hutatma Rajguru Mahavidyalaya, Rajgurunagar, Pune 410505 as a source of your graduate / Post-graduate. This form has been designed to seek suggestions or comments from you about the College .

**Name of the Alumni \***

Short answer text



Questions Responses 26 Settings

Short answer text

Present Occupation/ Designation \*

Short answer text

1 How do you rate the courses that you have learnt in the college in relation to your current job / occupation \*

- ☐ Excellent
- ☐ Very good
- ☐ Good
- ☐ Average

