



**SARVODAYA KELAVANI SAMAJ MANAGED,**

**SHREE MANIBHAI VIRANI AND SMT. NAVALBEN VIRANI SCIENCE COLLEGE,**

**An Autonomous College - Affiliated to Saurashtra University, Rajkot.**

Re-Accredited at 'A' Level by NAAC

STAR college Scheme & Status by MST-DBT

UGC- College with Potential for Excellence (CPE)

UGC-DDU KAUSHAL Kendra

GAAA – Highest Grade A-1 by KCG, Government of Gujarat

GPCB-Government of Gujarat approved Environment Audit Center

UGC-Autonomous College

**Board of Studies (BoS)**

**DEPARTMENT OF PHYSICS**

**COMPOSITION / AGENDA / NOTES / ATTENDANCE / MoM**

<b>Academic Year</b>	<b>Meeting Number</b>	<b>Date</b>
2021-22	6	30/06/2021

**Shree Manibhai Virani & Smt. Navalben Virani Science College, Rajkot**

**(Autonomous)**

**Affiliated to Saurashtra University, Rajkot**

**Department of Physics**

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<b>S.No.</b>	<b>Title</b>	<b>Content</b>
1	Agenda of BOS	Minutes of the Meeting
2	Enclosure-I	Revision of syllabi for DSE-Allied courses of Semester-I to IV for UG Programs.
3	Enclosure-II	Revision of syllabi Part-III Sec-III-Value Added Courses.
4	Enclosure-III	Revision of list of Examiners and Paper Setters.

## **Agenda & notes**

1 Syllabus of IDC course for,

1.1 – B.Sc. Chemistry Programme Semester I & II.

1.2 – B.Sc. Maths Programme Semester I & II.

2. List of Paper setter and Examiner for IDC course to semester I & II of B.Sc. Chemistry and

B. Sc. Maths.

4. List of for Practical and Theory paper evaluation offered to semester I & II of B.Sc.

Chemistry and B. Sc. Maths.

5. Any other matter with the permission of the Chair.

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**BOARD OF STUDIES- PHYSICS**

S.No.	Name of Member	Signature
1.	Dr. B S Trivedi	B.S. Trivedi
2.	Dr. B A Joshi	absent
3.	Dr Dipak Dave	D. J. Dave
4.	Dr. H.C.Mandavia (Subject expert)	on line
5.	Dr. H H Joshi (V. C. Nominee)	on line
6.	Dr. Ashish Kothari	Ashish

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**BOARD OF STUDIES- PHYSICS**

**Date: 30-06-2021**

**Time: 12:00PM**

**Shree Manibhai Virani & Smt. Navalben Virani Science College, Rajkot**

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**BOARD OF STUDIES- PHYSICS**

**Agenda:**

1. Welcome and introductory remarks by Chairman
2. ATR of the recommendations / resolutions made in previous BoS meeting.
3. Online TL & E methodologies/ strategies adopted for A.Y. 2019-20 & 2020-21 as per UGC, Government and University preventive guidelines for Covid-19 pandemic.
4. Adoption and implementation of UGC – Learning Outcomes based Curriculum Framework (LOCF) for Undergraduate Education from A.Y. 2021-22 in harmony with National Education Policy-2020.
5. Updation of List of Question Paper Setters and Examiners-Theory & Practical for UG Program.
6. Any other

## Annexure I

Department: Physics

Programme: **B.Sc. Chemistry/Mathematics**

Semester – I		
Course Code	Course Title	Credits
21UPHIDC101	: Electricity and modern physics	3

### Course Description:

This course covers of fundamental concepts of different topics of electricity, some basics concepts of modern physics like structure of atom and wave mechanics are covering fundamental aspect of modern physics which are useful for chemistry and mathematics students

### Course Purpose:

As this course is design for study of chemistry and Mathematics students as ICD subject different fundamental concepts of electricity are covered in such a way that it can be helpful to them in future study and modern physics aspect are always interdisciplinary useful topic

**Course Outcomes:** Upon completion of this course, the learner will be able to

CO No.	CO Statement	Blooms taxonomy Level (K <sub>1</sub> to K <sub>6</sub> )
CO <sub>1</sub>	D.C.Circuits & A.C.Circuits analysis	K3
CO <sub>2</sub>	Network Theorems & Multimeter	K3
CO <sub>3</sub>	Structure of The Atom	K2
CO <sub>4</sub>	Wave Mechanics	K2
CO <sub>5</sub>	Particle accelerators and cosmic rays	K1, K3

Course Content	Hours
<b>Module-I : D.C.Circuits &amp; A.C.Circuits</b>	<b>10 hrs</b>
<ul style="list-style-type: none"><li>● Growth and decay of current in L-R circuit with D.C. source</li><li>● Charge and Discharge of R-C</li><li>● Circuit with D.C. source</li><li>● A.C.Circuits</li></ul>	

<ul style="list-style-type: none"> <li>● Review of Alternating currents, Cycle, Frequency, Phase</li> <li>● R.M.S value of Alternating currents</li> <li>● L-C-R series A.C.source</li> <li>● L-C-R series resonance</li> <li>● Parallel resonance</li> </ul>	
<b>Module-II: Network Theorems &amp; Multimeter</b>	<b>08 hrs</b>
<ul style="list-style-type: none"> <li>● Constant voltage source</li> <li>● Constant current source</li> <li>● Maximum power transfer theorem</li> <li>● Thevenin's theorem</li> <li>● Norton's theorem</li> <li>● Multimeter</li> </ul>	
<b>Module III: Structure of The Atom</b>	<b>08hrs</b>
<ul style="list-style-type: none"> <li>● Failure of Classical Mechanics ,</li> <li>● Effect of Nuclear Motion on Atomic Spectra</li> <li>● Correspondence Principle , Critical Potentials</li> <li>● Atomic Excitation, Vector Model</li> <li>● Quantum numbers</li> </ul>	
<b>Module IV: <i>Wave Mechanics</i></b>	<b>8hrs</b>
<ul style="list-style-type: none"> <li>● De'Broglie wavelength &amp; Phase velocity of De'Broglie's wave</li> <li>● Expression for group velocity</li> <li>● Group velocity of de Broglie's wave</li> <li>● Relation between Phase velocity &amp; Group velocity</li> </ul>	
<b>Module V: <i>Particle accelerators and cosmic rays</i></b>	<b>8 hrs</b>
<ul style="list-style-type: none"> <li>● <b>(a) Particle accelerators</b></li> <li>● Introduction, Linear accelerator</li> <li>● Cyclotron or Lawrence cyclotron</li> <li>● Synchrocyclotron</li> <li>● <b>(b) Cosmic rays</b></li> <li>● Discovery of cosmic rays</li> <li>● Latitude effect, The east west effect or the azimuth effect</li> <li>● The altitude effect, Primary cosmic rays</li> <li>● Secondary cosmic rays</li> </ul>	

- Origin of cosmic rays

## IDC – I Practical

### Physics Practical – Electricity and Mechanics

21UPHIDC102	physics Practical	6 Hrs/Week	2 Credits
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#### Course Description:

The practical course includes all fundamental practical of measurement , mechanics and electricity and different circuit fabrication

#### Course Purpose:

The course of practical is develop to make student well verge to electricity tools , circuit fabrication and measurement methodology

**Course Outcomes:** Upon completion of this course, the learner will be able to

CO No.	CO Statement	Blooms taxonomy Level (S <sub>1</sub> to S <sub>6</sub> )
CO <sub>1</sub>	Basic measurement methods	S1
CO <sub>2</sub>	Basic circuit analysis	S1
CO <sub>3</sub>	Use of rotational mechanic to evaluate different parameters of solid body.	S1 & S3
CO <sub>4</sub>	Material properties of body	S2
CO <sub>5</sub>	Circuit fabrication	S2 & S3

#### *List of Practical*

- Discharge of Capacitor and RC time constant.
- Series Resonance.
- Parallel Resonance.
- Verification of Maximum power transfer theorem. (Using PCB)
- Fabrication: Designing, Mounting, Soldering, Analysing and testing of Series Resistors.
- Fabrication: Designing, Mounting, Soldering, Analysing and testing of Parallel Resistors
- Use of Multimeter



- Low Resistance by projection method
- Verification of Ohm's law
- Low Resistances by Potentiometer
- Error analysis(2)
- bar pendulum(2)
- Bifilar suspension(2)
- Tensional pendulum (3)
- Young's modulus by serl's method
- Possion's ratio and elastic parameter of rubber tube(3)

**Text books :**

- V.K.Mehta & Rohit Mehta., Principles of Electronics S.Chand Comp.
- Fundamentals Of Physics By Halliday, Resnick & Walker, Welly Publication.

**Reference books :**

- Modern Physics - R.Murugesan & Kiruthiga Sivaprasath, S.Chand Comp.
- . Engineering Physics - R.K.Gaur, S.L.Gupta, Dhanpat Rai Publications

**Reference Book: ( For Practical)**

1. C.L.Arora Practical Physics, S. Chand Comp.
2. Chauhan & Singh Advanced Practical Physics. Pragati Prakashan.
3. Experimental Physics, University Granth Nirman Board, (Gujarati Medium)

**Pedagogic tools:**

- Chalk and Board
- Power point presentation
- Seminar
- Videos

**Methods of Assessment & Tools:**

Components of CIE: 30 marks (Example as below)

<b>Sr. No.</b>	<b>Component</b>	<b>Content</b>	<b>Duration (if any)</b>	<b>Marks</b>	<b>Sub Total</b>
<b>A</b>	Test 1	1 <sup>st</sup> 2 units	1 <sup>1/2</sup> hours	5 (Set for 30)	20
	Test 2	All 5 units	3 hours	15 (Set for 60)	
<b>B</b>	Assignment	2		08	10
<b>C</b>	Class activity			12	
<b>Grand Total</b>					<b>30</b>
<b>Assignment</b>		<ul style="list-style-type: none"> <li>● Abstract and executive summary</li> <li>● Experimental design</li> <li>● Concept mapping</li> <li>● Student generated handbook</li> <li>● Essay writing etc...</li> </ul>			
<b>Class activity</b>		<ul style="list-style-type: none"> <li>● Reaction paper</li> <li>● Quiz</li> <li>● One-minute paper</li> <li>● Situation based question</li> <li>● Application card etc..</li> </ul>			

**Note : Any other assessment tools or methods can be adopted as per requirement of the course.**

The Scheme of Instruction & Examinations framed for Semesters I to IV of physics for students of B.Sc(Mathematics) Semesters I to II B.Sc ( Chemistry) For , admitted from A.Y. 2021-22 & onwards

Semester I(Chemistry)									
Course Code	Course	Contact Hrs/ week			SEE Duration (Hours)	Maximum Marks			Credits
		T	Tu	P		CIA	SEE	Total	
<b>Part-II</b>		<b>T</b>	<b>Tu</b>	<b>P</b>					
	Electronics and Modern Physics	3	-	3	3	30	70	100	3
Semester II (Chemistry)									
Course Code	Course	Contact Hrs/ week			SEE Duration (Hours)	Maximum Marks			Credits
		T	Tu	P		CIA	SEE	Total	
<b>Part-II</b>		<b>T</b>	<b>Tu</b>	<b>P</b>					
	Electronics , sound,Modern physics	3	-	3	3	30	70	100	3

Semester I(Mathematics)									
Course Code	Course	Contact Hrs/ week			SEE Duration (Hours)	Maximum Marks			Credits
		T	Tu	P		CIA	SEE	Total	
<b>Part-II</b>		<b>T</b>	<b>Tu</b>	<b>P</b>					
	Electronics and Modern Physics	3	-	3	3	30	70	100	3
Semester II (Mathematics)									
Course Code	Course	Contact Hrs/ week			SEE Duration (Hours)	Maximum Marks			Credits
		T	Tu	P		CIA	SEE	Total	
<b>Part-II</b>		<b>T</b>	<b>Tu</b>	<b>P</b>					
	Electronics ,Sound and Modern physics	3	-	3	3	30	70	100	3
Semester III									
Course Code	Course	Contact Hrs/ week			SEE Duration (Hours)	Maximum Marks			Credits
		T	Tu	P		CIA	SEE	Total	
<b>Part-II</b>		<b>T</b>	<b>Tu</b>	<b>P</b>					

	Electrostatic, Laser, Electronics and Quantum Physics	3	-	-	3	30	70	100	3
<b>Semester IV</b>									
Course Code	Course	Contact Hrs/ week			SEE Duratio n (Hours)	Maximum Marks			Credits
		T	Tu	P		CIA	SEE	Total	
<b>Part-I</b>		<b>T</b>	<b>Tu</b>	<b>P</b>					
	Relativity, Optics , Electronics and Mathematical Physics	3	-	-	3	30	70	100	3